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Nokia FastMile 5G Gateway 3.2 Operator Manual

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Nokia is committed to diversity and inclusion. We are continuously reviewing our customer documentation and consulting with standards bodies to ensure that terminology is inclusive and aligned with the industry. Our future customer documentation will be updated accordingly.

1 Preface

This preface provides general information about the Operator Manual for the Nokia FastMile 5G Gateway 3.2.

1.1 Summary of document edition changes

Changes between document editions are cumulative. Therefore, the latest document edition contains all changes made to previous editions.

Edition 01 is the initial edition of the document for this release of the FastMile 5G Gateway 3.2.

Edition 02 is the next edition of the document for this release of the FastMile 5G Gateway 3.2. The Japan and ANSI safety information has been updated and moved to the ANSI safety guidelines chapter from the appendix. The appendix has been removed. Table for output power information has been removed.

1.2 Scope

This Operator Manual provides an overview of the Nokia FastMile 5G Gateway 3.2, along with information about installing and configuring it.

1.3 Audience

This Operator Manual is primarily intended for employees of service providers or for operations or similar personnel who are involved in installing, upgrading, or maintaining the Nokia FastMile 5G Gateway 3.2.

1.4 Required knowledge

It is recommended that the reader be familiar with general telecommunications principles.

1.5 Acronyms and initialisms

The expansions and optional descriptions of most acronyms and initialisms used in this document appear in the glossary at the back of the document.

1.6 Assistance and ordering phone numbers

Nokia provides global technical support through regional call centers. Phone numbers for the regional call centers are available at the following URL: https://customer.nokia.com/support/s/.

For ordering information, contact your Nokia sales representative.

1.7 Nokia quality processes

Nokia's FastMile 5G Gateway 3.2 quality practices are in compliance with TL 9000 requirements.The customer or its representatives may be allowed to perform on-site quality surveillance audits, as agreed upon during contract negotiations.

1.8 Safety information

For safety information, see the appropriate safety guidelines.

1.9 Documents

The *FastMile 5G Customer Release Notes* lists customer documentation for the FastMile 5G Gateway 3.2. The documents are available from the Nokia Documentation Center.

Procedure 1 To access individual documents

Individual PDFs of customer documents are accessible to registered users through the Documentation Center website.

1 Go to https://documentation.nokia.com

Log in as required.

2 Enter FastMile 5G Gateway in the Product box.

3 Select the search criteria as needed (Release, Content Type, Sort by, etc.) and Click on Search.

4 Click on the PDF document icon to access a document.

Note 1 — If you have not already logged in from the Support portal, you will be prompted to log in now.

Note 2 — Customer documentation is available at initial release for customers with applicable Service Level Agreements or from your Nokia support representative. Documentation is generally available to all customers at general availability release.

1.10 Special information

The following are examples of how special information is presented in this document.

Danger — Danger indicates that the described activity or situation may result in serious personal injury or death; for example, high voltage or electric shock hazards.

Warning — Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.

Caution — Caution indicates that the described activity or situation may, or will, cause service interruption.

Note — A note provides information that is, or may be, of special interest.

1.10.1 Steps with options or substeps

When there are options in a step in this document, they are identified by letters. When there are required substeps in a step in this document, they are identified by roman numerals.

Procedure 2 Example of options in a step

At step 1, you must choose option a or b.

1 This step offers two options. You must choose one of the following:

- **a** This is one option.
- **b** This is another option.

2 You must perform this step.

Procedure 3 Example of required substeps in a step

At step 1, you must perform a series of substeps within the step.

1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps:

- **i** This is the first substep.
- **ii** This is the second substep.
- **iii** This is the third substep.

2 You must perform this step.

1.11 Multiple PDF document search

You can use Adobe Reader Release 6.0 and later to search multiple PDF files for a common term. Adobe Reader displays the results in a single display panel. The results are grouped by PDF file, and you can expand the entry for each file.

Note — The PDF files in which you search must be in the same folder.

Procedure 4 To search multiple PDF files for a common term

1. Open Adobe Acrobat Reader.
2. Choose Edit→Search from the Acrobat Reader main menu. The Search PDF panel appears.
3. Enter the search criteria.
4. Click on the All PDF Documents In radio button.
5. Select the folder in which to search using the drop-down menu.
6. Click on the Search button.

   Acrobat Reader displays the search results. You can expand the entries for each document by clicking on the + symbol.

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2 ANSI safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of the Nokia FastMile 5G Gateway 3.2 in the North American or ANSI market.

2.1 Safety instructions

This section describes the safety instructions that are provided in the customer documentation and on the Nokia FastMile 5G Gateway 3.2.

2.1.1 Safety instruction boxes in customer documentation

The safety instruction boxes are provided in the Nokia FastMile 5G Gateway 3.2 customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.

Danger — Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.

Warning 1 — Possibility of equipment damage.

Warning 2 — Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.

Caution 1 — Possibility of service interruption.

Caution 2 — Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.

Note — Information of special interest.

The Note box provides information that assists the personnel working with the Nokia FastMile 5G Gateway 3.2. It does not provide safety-related instructions.

2.1.2 Safety-related labels

The Nokia FastMile 5G Gateway 3.2 is labeled with specific safety compliance information and instructions that are related to a product, or product variant, of the equipment. Observe the instructions on the safety labels.

Table 1 provides examples of the various Nokia FastMile 5G Gateway 3.2 safety labels.

Table 1 **Safety labels**

Description	Label text	Model
ETL compliance	ETL/cETL	5G16-12W-A
FCC compliance	FCC	
VCCI Class equipment compliance	VCCI	5G13-12W-A
GITEKI compliance	R xxxxxx T xxxxxx	

Figure 1 shows a sample of an ETL safety label.

Figure 2 shows a sample of an FCC safety label.

Figure 3 shows a sample of a VCCI safety label.

Figure 4 shows a sample of a GITEKI safety label.

Figure 1 **ETL safety label**

Figure 2 **FCC safety label**

Figure 3 **VCCI label**

Figure 4 **GITEKI label**

2.2 Safety standards compliance

This section describes the Nokia FastMile 5G Gateway 3.2 compliance with North American safety standards.

Warning — Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.2.1 Electrical Testing Labs (ETL)

This product has been tested by Intertek and is in compliance with national standards across the US and Canada.

2.2.2 FCC Regulations

Table 2 provides the Federal Communications Commission ID for the Nokia FastMile 5G Gateway 3.2.

Table 2 **FCC Identification**

Model	FCC ID
5G16-12W-A	2ADZR5G1612WA

2.2.2.1 EMC compliance

The Nokia FastMile 5G Gateway 3.2 complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1 This device may not cause harmful interference.

2 This device must accept any interference received, including interference that may cause undesired operation.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- re-orient or relocate the receiving antenna
- Increase the separation between the equipment and receiver

- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help

Caution — Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.2.3 RF exposure information

The Nokia FastMile 5G Gateway 3.2 meets the government's requirements for exposure to radio waves.This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment.

Caution — In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 29 cm (12 inches) during normal operation.

2.2.4 ISED notice

This device complies with the Canadian ICES-003 Class B specifications. CAN ICES-003(B)/ NMB-003 (B) IC: 21694-5G1612WA.

This device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1 This device may not cause interference.

2 This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1 L'appareil ne doit pas produire de brouillage.

2 L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en.

The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

2.2.4.1 RF exposure information

To satisfy IC RF exposure requirements, a separation distance of 35 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la CNR-102 définies pour un environnement non contrôlé. Afin d'éviter la possibilité de dépasser les limites d'exposition aux fréquences radio de la CNR-102, la proximité humaine à l'antenne ne doit pas être inférieure à 35 cm (14 pouces) pendant le fonctionnement normal.

2.2.5 Equipment safety standard compliance

The Nokia FastMile 5G Gateway 3.2 complies with the requirements of:

- UL 62368-1, Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements
- CSA C22.2#62368-1, Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements

2.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the Nokia FastMile 5G Gateway 3.2.

Note — The Nokia FastMile 5G Gateway 3.2 complies with the U.S. National Electrical Code. However, local electrical authorities have jurisdiction when there are differences between the local and U.S. standards.

2.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

2.3.2 Cabling

The following are the guidelines regarding cables used for the Nokia FastMile 5G Gateway 3.2:

- All cables must be approved by the relevant national electrical code.
- If cabling is supplied with the Nokia FastMile 5G Gateway 3.2, the supplied cabling must be used with the equipment.

2.3.3 Protective earth

Earthing and bonding of the Nokia FastMile 5G Gateway 3.2 must comply with the requirements of NEC article 250 or local electrical codes.

2.4 ESD safety guidelines

The Nokia FastMile 5G Gateway 3.2 is sensitive to ESD if opened. Operations personnel are not allowed to open the Nokia FastMile 5G Gateway 3.2.

Caution — This equipment is ESD sensitive if opened. Proper ESD protections should be used if you open the Nokia FastMile 5G Gateway 3.2.

Service personnel are not required to wear wrist straps when performing normal installation or maintenance activities.

2.5 Environmental requirements

The thermal limitations for the Nokia FastMile 5G Gateway 3.2 are:

- operating temperature (ambient): -5°C to 40°C (23°F to 104°F)
- storage temperature (ambient): -40°C to 70°C (-40°F to 158°F)
- storage temperature (ambient):
  - one year: -20°C to 23 °C (-4 °F to 73 °F)
  - three months: -20°C to 45 °C (-4 °F to 113 °F)
  - one month: -20°C to 60 °C (-4 °F to 140 °F)
- operating relative humidity: 5% to 85%, non-condensing
- short-term relative humidity: 5% to 93%, non-condensing

2.6 Japan safety and warranty guidelines

For information about the hardware Limited Warranty and/or repair, or replacement of the product, see the Quick Start Guide.

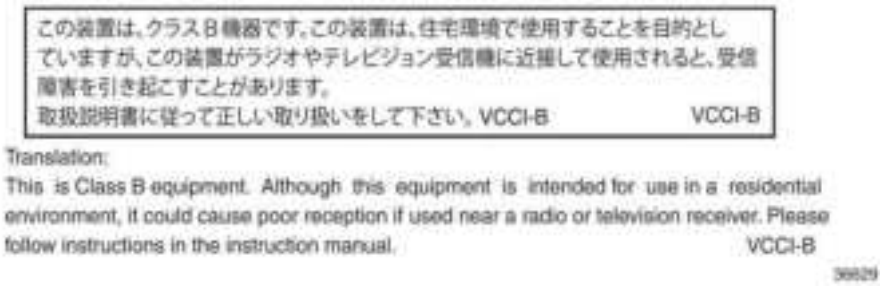
2.6.1 Voluntary Control Council for Interference (VCCI)

The Nokia FastMile 5G Gateway 3.2 is in compliance with the Japanese authority for Voluntary Control Council for Interference by Information Technology Equipment.

Note — This is a Class B equipment. Although this equipment is intended for use in a residential environment, it could cause poor reception if used near a radio or a television receiver. Please follow the instruction in the instruction manual.

Figure 5 shows the Japanese VCCI-B label.

Figure 5 **VCCI-B label**



The Nokia FastMile 5G Gateway 3.2 is for indoor transmission only, except for the transmission with 5GHz High Power Data Communication System base Station or Relay Station.

2.6.2 GITEKI

The Nokia FastMile 5G Gateway 3.2 is in compliance with Japan's Ministry of Internal Affairs and Communications (MIC) for the Radio Act and for the Electronic Communications Business Act. (also known as the Telecom Engineering Center certification (TELEC)). This certification is performed by a Registered Certification Body (RCB).

3 ETSI environmental and RoHS guidelines

This chapter provides information about the ETSI environmental and Restriction of Hazardous Substances (RoHS) regulations that govern the installation and operation of the Nokia FastMile 5G Gateway 3.2. This chapter also includes environmental operation parameters of general interest.

3.1 Environmental labels

This section describes the environmental instructions that are provided with the customer documentation, equipment, and location where the equipment resides.

3.1.1 Overview

RoHS is applicable to Electronic Information Products (EIP) manufactured or sold and imported. EIP refers to products and their accessories manufactured by using electronic information technology, including electronic communications products and such subcomponents as batteries and cables.

3.1.2 Environmental related labels

Environmental labels are located on appropriate equipment. The following are sample labels.

3.1.2.1 Products below Maximum Concentration Value (MCV) label

This label indicates a product is below the maximum concentration value, as defined by standard SJ/T11363-2006 (Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products). Products with this label are recyclable. The label may be found in this documentation or on the product. See Figure 6.

Figure 6 **Products below MCV value label**

3.1.2.2 Products containing hazardous substances above Maximum Concentration Value (MCV) label

This label indicates a product is above the maximum concentration value, as defined by standard SJ/T11363-2006 (Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products). The number contained inside the label indicates the Environment-Friendly User Period (EFUP) value. The label may be found in this documentation or on the product.

Together with major international telecommunications equipment companies, Nokia has determined it is appropriate to use an EFUP of 50 years for network infrastructure equipment and an EFUP of 20 years for handsets and accessories. These values are based on manufacturers' extensive practical experience of the design, manufacturing, maintenance, usage conditions, operating environments, and physical condition of infrastructure and handsets after years of service. The values reflect minimum values and refer to products operated according to the intended use conditions. See Figure 7.

Figure 7 **Products above MCV value label**

3.2 Other environmental requirements

Observe the following environmental requirements when handling the Nokia FastMile 5G Gateway 3.2.

3.2.1 Environmental requirements

See section 4.5 for thermal limitations and see chapter 5 for information about temperature ranges for the Nokia FastMile 5G Gateway 3.2 and other Nokia FastMile 5G Gateway 3.2 specifications.

3.2.2 Storage

According to ETS 300-019-1-1 - Class 1.1, storage of the Nokia FastMile 5G Gateway 3.2 must be in Class 1.1, weather-protected, temperature-controlled locations.

3.2.3 Transportation

According to EN 300-019-1-2 - Class 2.3, transportation of the Nokia FastMile 5G Gateway 3.2 must be in packed, public transportation.

3.2.4 Stationary use

According to EN 300-019-1-3 - Class 3.1/3.2/3.E, stationary use of the Nokia FastMile 5G Gateway 3.2 must be in a temperature-controlled location with no condensation allowed.

3.2.5 Material content compliance

European Union (EU) Directive 2011/65/EU and as amended, “Restriction of the use of certain Hazardous Substances” (RoHS), restricts the use of lead, mercury, cadmium, hexavalent chromium, and PBB,PBDE,DEHP,DBP,BBP,DIBP in electrical and electronic equipment. This Directive applies to electrical and electronic products placed on the EU market and effective from July 22 2019, with various exemptions, including an exemption for lead solder in network infrastructure equipment. Nokia products shipped to the EU after July 22 2019 comply with the EU RoHS Directive.

Nokia has implemented a material/substance content management process. The process is described in: Nokia process for ensuring RoHS Compliance (1AA002660031ASZZA). This ensures compliance with the European Union Directive 2011/65/EU and as amended on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2). With the process equipment is assessed in accordance with the Harmonised Standard EN50581:2012 (CENELEC) on Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

3.2.6 End-of-life collection and treatment

Electronic products bearing or referencing the symbol shown in Figure 8, when put on the market within the European Union (EU), shall be collected and treated at the end of their useful life, in compliance with applicable EU and local legislation. They shall not be disposed of as part of unsorted municipal waste. Due to materials that may be contained in the product, such as heavy metals or batteries, the environment and human health may be negatively impacted as a result of inappropriate disposal.

Figure 8 **Recycling/take back/disposal of product symbol**

At the end of its life, the Nokia FastMile 5G Gateway 3.2 is subject to the applicable local legislations that implement the European Directive 2012/19EU on waste electrical and electronic equipment (WEEE).

There can be different requirements for collection and treatment in different member states of the European Union.

In compliance with legal requirements and contractual agreements, where applicable, Nokia will offer to provide for the collection and treatment of Nokia products bearing the logo shown in Figure 8 at the end of their useful life, or products displaced by Nokia equipment offers. For information regarding take-back of equipment by Nokia, or for more information regarding the requirements for recycling/disposal of product, contact your Nokia account manager or Nokia take back support at sustainability.global@nokia.com.

4 ETSI safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of the Nokia FastMile 5G Gateway 3.2 in the ETSI market.

4.1 Safety instructions

This section describes the safety instructions that are provided in the customer documentation and on the Nokia FastMile 5G Gateway 3.2.

4.1.1 Safety instruction boxes

The safety instruction boxes are provided in the Nokia FastMile 5G Gateway 3.2 customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.

Danger — Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.

Warning 1 — Possibility of equipment damage.

Warning 2 — Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.

Caution 1 — Possibility of service interruption.

Caution 2 — Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.

Note — Information of special interest.

The Note box provides information that assists the personnel working with the Nokia FastMile 5G Gateway 3.2. It does not provide safety-related instructions.

4.1.2 Safety-related labels

The Nokia FastMile 5G Gateway 3.2 is labeled with the specific safety instructions and compliance information that is related to a product, or product variant, of the equipment. Observe the instructions on the safety labels.

Table 3 provides sample safety labels on the Nokia FastMile 5G Gateway 3.2.

Table 3 **Safety labels**

Description	Label text	Model
CE marking	CE	5G15-12W-A
WEEE marking	-	

Figure 9 shows an example of a CE marking label.

Figure 10 shows an example of a WEEE marking label.

Figure 9 **CE marking**

Figure 10 **WEEE label**

4.2 Safety standards compliance

This section describes Nokia FastMile 5G Gateway 3.2 compliance with the European safety standards.

4.2.1 EMC compliance

The Nokia FastMile 5G Gateway 3.2 complies with the following EMC requirements:

- Electromagnetic compatibility of multimedia equipment - Emission requirements CISPR 32, EN 55032
- Electromagnetic compatibility of multimedia equipment - Immunity requirements CISPR 35, EN55035
- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU EN 301489-1
- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU EN 301489-17

- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU EN301489-52
- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1.5 GHz band providing data communications and GNSS receivers operating in the RNSS band providing positioning, navigation, and timing data; Harmonized Standard for ElectroMagnetic Compatibility; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU EN 301489-19

4.2.2 Equipment safety standard compliance

The Nokia FastMile 5G Gateway 3.2 complies with the requirements of the following:

- IEC 62368-1, Audio/video, information and communication technology equipment - Part 1: Safety requirements

4.2.3 Environmental standard compliance

The Nokia FastMile 5G Gateway 3.2 complies with the EN 300 019 European environmental standards.

4.2.4 Laser product standard compliance

The Nokia FastMile 5G Gateway 3.2 is not a laser product.

4.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the Nokia FastMile 5G Gateway 3.2.

The Nokia FastMile 5G Gateway 3.2 complies with BS EN 61140.

4.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

4.3.2 Cabling

The following are the guidelines regarding cables used for the Nokia FastMile 5G Gateway 3.2:

- All cables must be approved by the relevant national electrical code.

4.3.3 Protective earth

Earthing and bonding of the Nokia FastMile 5G Gateway 3.2 must comply with the requirements of local electrical codes.

4.4 ESD safety guidelines

The Nokia FastMile 5G Gateway 3.2 is sensitive to ESD if opened. Operations personnel are not allowed to open the Nokia FastMile 5G Gateway 3.2.

Caution — This equipment is ESD sensitive if opened. Proper ESD protections should be used if you open the Nokia FastMile 5G Gateway 3.2.

Service personnel are not required to wear wrist straps when performing normal installation or maintenance activities.

4.5 Environmental requirements

The environmental requirements for the Nokia FastMile 5G Gateway 3.2 are:

- operating temperature (ambient): -5°C to 40°C (23°F to 104°F)
- storage temperature (ambient): -40°C to 70°C (-40°F to 158°F)
- operating relative humidity: 5% to 85% relative humidity, non-condensing
- short-term relative humidity: 5% to 93% relative humidity, non-condensing

See chapter 5 in this guide for more information about the Nokia FastMile 5G Gateway 3.2 and for other Nokia FastMile 5G Gateway 3.2 specifications.

4.6 Restriction and warning for regulation compliance

Note — Observe the following restriction regarding use of the Nokia FastMile 5G Gateway 3.2 when operating in the specified frequency range in the indicated countries.

Restriction: The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range, see Table 4 for applicable country codes.

Table 4 **Restriction table regarding indoor use in the 5150 to 5350 MHz frequency range**

Applicable country codes				
AT	BE	BG	HR	NO
CY	CZ	DK	EE	IS
FI	FR	DE	EL	LI
HU	IE	IT	LV	CH
LT	LU	MT	NL	TR
PL	PT	RO	SK	
SI	ES	SE	UK(NI)	

Warning — Adapter shall be installed near the equipment and shall be easily accessible.

4.7 RF exposure

The device compliance distance is 20 cm according to SAR evaluation based on EN50385.

4.8 Conformité Européanne - European Health and Safety product label (CE)

The product is in compliance with the highest safety, health, and environmental protection requirements.

4.9 Waste from Electrical and Electronic Equipment (WEEE) safety guidelines

The product at end of life is subject to separate collection and treatment in the EU Member States, Norway, and Switzerland and therefore marked with the WEEE label.

Treatment applied at end of life of the product in these countries shall comply with the applicable national laws on wastes from electrical and electronic equipment and more particularly those implementing the European directive 2002/96/EC (WEEE).

In countries outside Europe and if not otherwise provided by any mandatory law in those countries where the product is sold, any take back by Nokia of waste electrical and electronic equipment shall be subject to terms and conditions to be agreed upon in writing. Any obligation of Nokia to take back such equipment shall apply only to complete not amended or modified equipment delivered by Nokia, i.e. containing all its components and sub-assemblies.

In case Nokia takes back electrical and electronic equipment, Nokia will ensure for the ecological safe and appropriate treatment in accordance with local regulations.

5 Product description

5.1 Product overview

The Nokia FastMile 5G Gateway 3.2 is a fully self-contained indoor gateway that is easy to deploy and connects wirelessly to a 4G/LTE or 5G mobile network for Gigabit delivery of network services within the home. It provides multiband omni-directional antennas gains and improves performance and reliability by using the best 4G and 5G signals available.

This plug-and-play device is simple to install and uses visual cues to help you identify an installation location that will achieve the best performance from a 4G/LTE or 5G network or from a combined 4G/LTE and 5G network.

Table 5 describes the models of the Nokia FastMile 5G Gateway 3.2 that are supported.

Table 5 **FastMile 5G Gateway 3.2 supported models and variants**

Model	Kit part number	Variant description	Device part number on bottom label
5G13-12W-A	3TG-01889-AA	Japan variant (including eSIM)	**3TG-01797-ADXX**
5G15-12W-A	3TG-01798-AB	ETSI EU variant (excluding eSIM)	**3TG-01797-AAXX**
	3TG-01798-AC (1)	ETSI UK variant (including eSIM)	**3TG-01797-ABXX**
	3TG-01798-AG (2)	ETSI UK variant (including eSIM and package logo	3TG-01797-ABXX
	3TG-01798-AH	ETSI EU variant (excluding eSIM with RJ11 port for voice	**3TG-01797-AHXX**
5G16-12W-A	3TG-01799-AA	ANSI variant (including eSIM)	**3TG-01797-ACXX**

Notes

(1) 3TG-01798-AC (3TG-01797-AB): eSIM profile is not programmed in factory, so the device must always rely on the nano-SIM card. In case eSIM is expected to be used, please contact your Nokia representative for details.

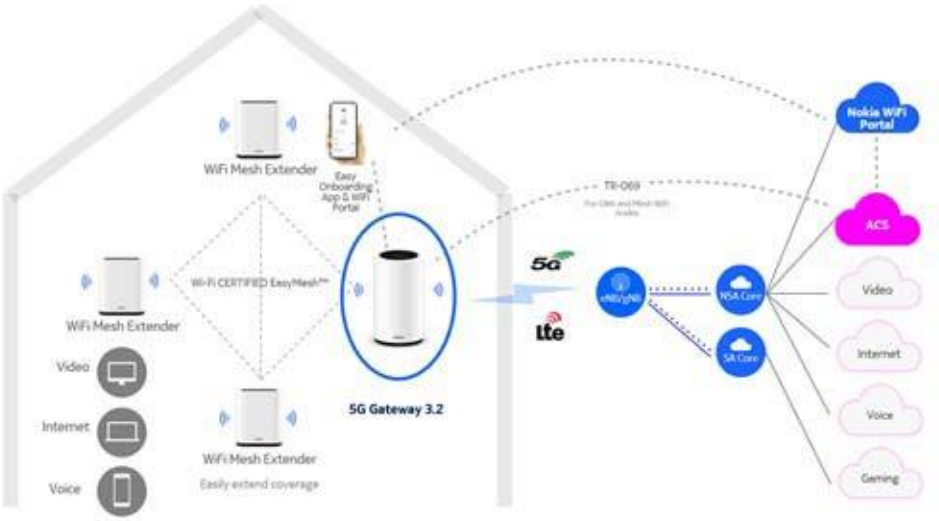
(2) 3TG-01798-AG (3TG-01797-AB): eSIM profile is programmed in factory, activation of profile is possible with the provided ICCID information on the device label. End-user can choose to activate the eSIM or use a nano-SIM card.

Figure 11 shows an example of the Nokia FastMile 5G Gateway 3.2 model 5G15-12W-A.

Figure 11 **The Nokia FastMile 5G Gateway 3.2**

Figure 12 shows the Nokia FastMile 5G Gateway 3.2 fixed wireless access end-to-end overview.

Figure 12 **Nokia FastMile 5G Gateway 3.2 fixed wireless access end-to-end overview**



The Nokia FastMile 5G Gateway 3.2 has the following main features:

- connects 4G/LTE multiband omni-directional antenna (up to 7.6 dBi)
- connects 5G NR multiband omni-directional antenna (up to 7.6 dBi)
- is a fully self-contained integrated residential gateway with two Gigabit Ethernet LAN ports and support for Wi-Fi connectivity
  - one Gigabit Ethernet LAN port
  - one configurable Gigabit Ethernet LAN/WAN port
- optional features:
  - one TEL port (RJ11) for voice service: supports VoLTE, VoNR, and VoIP

    The TEL port may be blocked and unavailable for certain providers.
  - supports Bluetooth
  - supports GPS
  - supports 3-axis accelerometer
  - supports eSIM
  - device hardware is modular to add two external antenna connectors (type TS-09) for 5G NR bands: n38/n40/n41/n78

    External antenna connectors are not included with the Nokia FastMile 5G Gateway 3.2
- supports up to 256 clients (128 clients per band)
- can act as an Access Point of an EasyMesh network of Nokia Wi-Fi Beacon 2 units (up to two Beacons supported)
- supports EasyMesh r1
  - interoperable with 2 Beacons
  - configurable custom SSIDs
  - configurable Wi-Fi using the WEB UI
- supports end-user self-installation using the Nokia Wi-Fi Mobile App

- can be managed by the Broadband Forum compliant TR-069/TR-181 Auto Configuration Server (ACS)
- Wi-Fi connectivity:
  - 4x4 IEEE 802.11ax 2.4 GHz (40 MHz) WLAN interface, with MU-MIMO
  - 4x4 IEEE 802.11ax 5 GHz (80 MHz) WLAN interface, with MU-MIMO
  - Wi-Fi 4 support
  - Wi-Fi 5 support (IEEE 802.11ac)
  - Wi-Fi 6 support (IEEE 802.11ax) – dual band 4+4 connectivity
  - is also compliant with IEEE 802.11 a/b/g/n/ac
  - is WAN compliant (by default is configured as LAN port)
- Wi-Fi security:
  - WPA/WPA2: AES encryption, AES plus TKIP encryption
  - WPA2 personal: AES encryption
  - WPA2/WPA3 transition mode
  - WPA3 personal: AES encryption
- customized default WLAN key
- WPS support
- supports PIN-locked SIM cards: a SIM PIN number is required to unblock SIM card service but not required to unblock subscriber access to the device

Note — The blue WAN port can only operate as an Ethernet LAN in this release. Contact your Nokia representative for information about Ethernet WAN functionality.

Nokia hosts a centralized server known as the ‘Onboarding Engine’ or BOENG server. The BOENG Server maintains the pre-configuration information such as ACS URL, ACS username, and ACS password for multiple operators. It facilitates faster deployments as there will be no need to include the pre-configuration information and generate a new image for every operator. While on-boarding, every CPE can access the BOENG server by providing its SIM card information and retrieve the pre-configuration of the associated operator. The pre-configuration information for an operator has to be uploaded into the BOENG Server one time before the start of a trial or deployment.

5.2 Supported modes and PDN information

The Nokia FastMile 5G Gateway 3.2 is designed to operate according to the 5G NSA/SA 3GPP Rel-15 standards, and can operate in the following modes:

- LTE-only mode:
  - When operating in LTE-only mode, the Nokia FastMile 5G Gateway 3.2 will only use 4G/LTE to connect to the mobile network.

- LTE CA 5G NR EN-DC mode:
  - When operating in LTE CA 5G NR EN-DC mode, the Nokia FastMile 5G Gateway 3.2 implements the 5G NSA (Option 3x, Option 3) configuration, meaning it uses a 4G/LTE carrier and a 5G NSA carrier at the same time to connect to the mobile network.
  - The control plane is carried over the LTE network and the user plane is carried over both the LTE and 5G NSA networks.
- 5G SA mode:
  - When operating in 5G SA mode (Option 2), the Nokia FastMile 5G Gateway 3.2 will only use 5G to connect to the mobile network.

Note 1 — Although the Nokia FastMile 5G Gateway 3.2 can support the three modes listed, the actual availability depends on the core network deployment. The modes can not be configured in the device.

Note 2 — 5G SA can be enabled or disabled depending on the operator pre-configuration requirements, and can also be enabled or disabled through an ACS (TR-069). Enabling 5G SA by default is an operator choice; 5G SA is enabled by default on Nokia's pre-configuration for FWAG OPID.

The Nokia FastMile 5G Gateway 3.2 provides Packet Data Network (PDN) connectivity management between the gateway and radio. It also supports up to five APNs to provide different services, such as OAM and Internet.

The OAM capabilities are as follows:

- software upgrade using TR-069
- remote management support based on TR-069/TR-181 (TR-069 based on HTTPS/HTTP)
- TR-143 diagnostics support, including over multiple APNs
- XMPP support (TR-069 Annex G)
- pre-configuration support based in individual OPIDs (PLMN lock based on the pre-configuration)
- BOENG server support
- TR-157 agent support:
  - bulk data collection
  - 3rd party software module installation on dedicated Execution Environment (requires container support for example; LxC or Docker)
- integrated HTTPS certificate for ACS
- ACS configuration (URL, username, password, and so on should be modified by ACS

5.3 Antenna support

The Nokia FastMile 5G Gateway 3.2 has separate interior antennas for the 4G/LTE interface and the 5G radio interface.

Note — Actual supported RF bands may vary in different regions due to certifications.

Table 6 describes the antenna support of the FastMile 5G Gateway 3.2 per model.

Table 6 **Antenna support**

FastMile 5G Gateway 3.2 model	4G/LTE interface	5G interface
5G13-12W-A	omni-directional antennas nominal antennas gain up to 4 dBi depending on the LTE band	omni-directional antennas nominal antennas gain up to 4 dBi depending on the 5G RF1 band
5G15-12W-A	omni-directional antennas nominal antennas gain up to 7.6 dBi depending on the LTE band	omni-directional antennas nominal antennas gain up to 7.6 dBi depending on the 5G RF1 band
5G16-12W-A	omni-directional antennas nominal antennas gain up to 6.7 dBi depending on the LTE band	omni-directional antennas nominal antennas gain up to 6.7 dBi depending on the 5G RF1 band

5.4 Environment

IP20 rating: the Nokia FastMile 5G Gateway 3.2 features an IP (Ingress Protection) rating of 20 for 5G16-12W-A and 5G15-12W-A.

IP30 rating: the Nokia FastMile 5G Gateway 3.2 features an IP (Ingress Protection) rating of 30 for 5G13-12W-A.

5.5 Physical dimensions

The Nokia FastMile 5G Gateway 3.2 has the following dimensions:

- height: 218.5 mm (8.6 in)
- diameter: 125 mm (4.9 in)
- weight: 1014g (2.235 lb)

5.6 Physical interfaces

Many of the physical interfaces for the Nokia FastMile 5G Gateway 3.2, including physical connectivity, are located on the side of the unit as shown in Figure 13 and include the following:

- signal test button
- WPS button (pressing the button starts the Wi-Fi Protected Setup (WPS) when adding Wi-Fi devices that support WPS)
- USB port: type-C storage - supports USB3.0
- two RJ45 LAN ports that can be used:
  - to connect up to two Gigabit Ethernet LANs (both ports are supported while Wi-Fi is working)
  - for local management of the Nokia FastMile 5G Gateway 3.2 through a locally-connected PC or laptop (local management can also be done through Wi-Fi)
  - note that one of the LAN ports is indicated as “LAN/WAN”, but it currently only supports LAN connectivity
- optional TEL port for voice service (RJ11 connector)

  The TEL port may be blocked and not be available for certain providers.
- power on/off button
- 12V DC power input jack

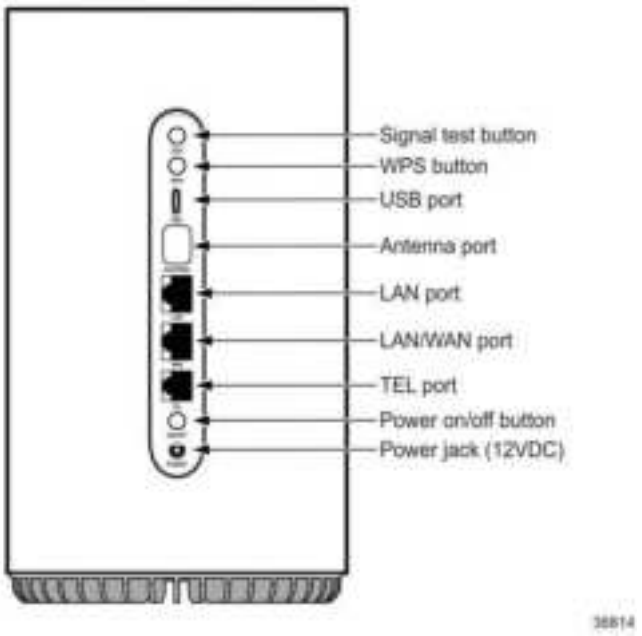
The following are located on the underside of the unit:

- slot for 4FF/nano-sized SIM card
- reset button

  Pressing the button for less than 5 seconds reboots the Nokia FastMile 5G Gateway 3.2 and preserves the configured settings.

  Pressing the button for 5 seconds or more restores the Nokia FastMile 5G Gateway 3.2 to its factory default settings and erases the configured settings.

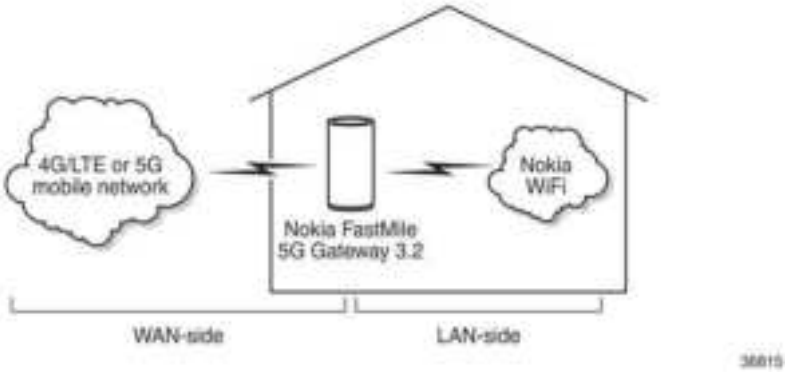
Figure 13 **Location of physical interfaces on the side of the Nokia FastMile 5G Gateway 3.2**



5.7 Typical connection

The Nokia FastMile 5G Gateway 3.2 typically has 4G/LTE and/or 5G mobile network connectivity in the upstream (WAN) direction and Wi-Fi connectivity (such as to a Nokia Wi-Fi network) in the downstream (LAN) direction as shown in Figure 14.

Figure 14 **Typical connectivity for the Nokia FastMile 5G Gateway 3.2**



The Nokia FastMile 5G Gateway 3.2 can also have the following physical network connections:

- Gigabit Ethernet LAN connections (two ports)

5.8 EasyMesh network with the Nokia FastMile 5G Gateway 3.2

An EasyMesh network can be created by connecting a Nokia Wi-Fi Beacon 2 to the Nokia FastMile 5G Gateway 3.2. The Nokia FastMile 5G Gateway 3.2 serves as the access point to the WAN while up to two Nokia Wi-Fi Beacons aid with extending Wi-Fi coverage to every corner of the home, providing seamless roaming to wireless connections.

Both cloudless and cloud methods are supported; cloud methods are managed by NWCC.

Unlike typical Wi-Fi networks that require unique SSIDs for each of the access points or tedious set-up of Wi-Fi extenders, which complicate the user experience, an EasyMesh network of Nokia Wi-Fi Beacons simplifies the end user experience by providing easy device onboarding and automated network optimization.

Adding a Nokia Wi-Fi Beacon 2 to create a mesh that has the Nokia FastMile 5G Gateway 3.2 as the access point can be done through the Nokia Wi-Fi mobile app. Contact your Nokia representative for more information about the Nokia Wi-Fi mobile app.

The Nokia Wi Fi Beacon 2 is not included as part of the Nokia FastMile 5G Gateway 3.2.

5.9 Nokia Wi-Fi Cloud Controller (NWCC)

The Nokia Wi-Fi Cloud Controller (NWCC) is a cloud-based solution that provides Wi-Fi management, radio resource management (RRM) optimization, and Wi-Fi insight visualization capabilities.

The NWCC can be hosted on public cloud, private cloud or dedicated servers. The cloud-based approach for NWCC enables the RRM algorithms to have a holistic view of the network, and to combine information from multiple APs in a neighborhood to assemble a complete, cohesive view of APs, channels, clients, and system performance—both real-time and historically.

In cases where the NWCC is unable to obtain certain metrics from a specific AP, the algorithms piece them together from other managed APs in the neighborhood. This enables the NWCC to work with already deployed, potentially less feature-rich APs, as well as next generation APs.

5.9.1 Radio Resource Management (RRM)

The RRM parameters include the following functions:

- channel management—a collection of algorithms for optimizing channel functions
- client steering—steers clients to the optimum AP or frequency band
- 5GHz load balancing—balances the load across multiple APs within the mesh on the 5 GHz band
- 5GHz preference band steering—steers client devices with good coverage to 5 GHz to maximize bandwidth
- transmit power control—reduces the AP's maximum power in high density environments to minimize interference among APs
- airtime management—limits or reserves Wi-Fi channel air-time across SSIDs and client devices

5.9.2 NWCC interfaces

The NWCC has two graphical user interfaces (GUIs).

- Home Console: used by help desk agents; it provides a real-time, holistic view of the in-home network
- Network Console: used by network operation engineers for enabling or disabling and parameterizing the different RRM algorithms

The NWCC interacts with the home gateway and extender APs through the Home Agent software module integrated in the devices. Communication between the NWCC and Home Agent is based on MQTT and HTTPS which, in the future, will evolve towards TR-369/USP architecture and interfaces.

5.10 NWCC Home Console -interoperability with 5G Gateway 3.2

NWCC Home Console portal features for FWA products focus on key Wi-Fi capabilities for demonstration of NWCC value for customers. Integration on Nokia FastMile 5G Gateway 3.2 is supported.

The following functions are supported from the Home Agent:

- L1/L2 Wi-Fi capability exposure to NWCC (CT quality)
- Wi-Fi ACS (Auto Channel Selection): enable / disable
- Wi-Fi SSID name change
- admin password reset
- Internet WAN bandwidth: usage / rate

The preconfig files must point to the corresponding values:

- device preconfig should point to production ACS and NWCC services for release builds:
  - ACS: production
  - NWCC: production

5.11 Management

The Nokia FastMile 5G Gateway 3.2 supports local management using a web-based GUI through a PC, laptop, or tablet that has an Ethernet LAN connection or a Wi-Fi connection to the Nokia FastMile 5G Gateway 3.2. Chapter 7 provides steps for configuration-related tasks for the Nokia FastMile 5G Gateway 3.2 that use the web-based GUI.

The Nokia FastMile 5G Gateway 3.2 supports remote management through TR-069 access for an ACS through the WAN.

The Nokia FastMile 5G Gateway 3.2 supports the TR-181 data model, and has TR-143 support.

Note — The web-based GUI screens are designed for 1920 * 1080 pixels. Supported browsers for the web-based GUI include Chrome, Edge, Mozilla Firefox, and Safari.

5.12 Power

The Nokia FastMile 5G Gateway 3.2 is powered by an external 12V DC power adapter, see Table 7.

Table 7 **Maximum power consumption**

FastMile 5G Gateway model	Maximum power consumption
5G13-12W-A	30 W
5G15-12W-A	30 W
5G16-12W-A	48 W

5.13 Additional feature information

This section provides additional feature information for the FastMile 5G Gateway 3.2.

5.13.1 4G/LTE additional features

This section describes the FastMile 5G Gateway 3.2 4G/LTE additional features supported per model.

5.13.1.1 Model 5G13-12W-A 4G/LTE additional features

The following 4G/LTE additional features are supported for model 5G13-12W-A:

- 4G/LTE antenna gains:
  - B41: 0.5 to 4 dBi
- 4G/LTE UL and DL highest order modulation: 256 QAM
- 4G/LTE UE category DL: 19
- 4G/LTE UE category UL: 18
- TM9 support
- 4G/LTE MIMO:
  - DL MIMO 4x4: B41

5.13.1.2 Model 5G15-12W-A 4G/LTE additional features

The following 4G/LTE additional features are supported for model 5G15-12W-A:

- 4G/LTE antenna gains:
  - B42, B43: 4.5 to 7.6 dBi
  - B7, B38, B40, B41: 2.5 to 6 dBi
  - B1, B3: 2 to 6 dBi
  - B32: 3.5 to 6 dBi
  - B5, B8, B20, B28: 0.5 to 3 dBi
- 4G/LTE UL and DL highest order modulation: 256 QAM
- 4G/LTE UE category DL: 19
- 4G/LTE UE category UL: 18
- TM9 support
- Supports High Power UE (HPUE) in LTE bands: B41
- 4G/LTE MIMO:
  - DL MIMO 4x4: B1, B3, B7, B32, B38, B40, B41, B42, B43
  - DL MIMO 2x2: B5, B8, B20, B28
  - UL SISO: all supported LTE bands
- Extensive LTE CA between supported bands

5.13.1.3 Model 5G16-12W-A 4G/LTE additional features

The following 4G/LTE additional features are supported for model 5G16-12W-A:

- 4G/LTE antenna gains:
  - B46: 4.6 to 6.7 dBi
  - B42, B43, B48: 4.9 to 6.6 dBi
  - B7, B38, B41: 3.4 to 6 dBi
  - B1, B2, B3, B4, B25, B66: 2 to 5.2 dBi
  - B5, B12, B13, B26, B71: 0.7 to 3 dBi
- 4G/LTE UL and DL highest order modulation: 256 QAM
- 4G/LTE UE category DL: 19
- 4G/LTE UE category UL: 18
- TM9 support
- Supports High Power UE (HPUE) in LTE bands: B41
- 4G/LTE MIMO:
  - DL MIMO 4x4: B1, B2, B3, B4, B7, B25, B38, B41, B42, B43, B48, B66
  - DL MIMO 2x2: B5, B12, B13, B26, B46, B71
  - UL SISO: all supported LTE bands
- Extensive LTE CA between supported bands

5.13.1.4 Supported 4G/LTE radio frequency

Table 8 describes the supported 4G/LTE radio frequency per model.

Table 8 **Supported 4G/LTE radio frequency**

FastMile 5G Gateway 3.2 model	Supported 4G/LTE radio frequency
5G13-12W-A	
radio bands for sub-6 GHz (TDD)	B41: 2496-2690 MHz
5G15-12W-A	
radio bands for sub-6 GHz (FDD)	B1: UL: 1920-1980 MHz; DL: 2110-2170 MHz
	B3: UL: 1710-1785 MHz; DL: 1805-1880 MHz
	B5: UL: 824 -849 MHz; DL: 869 - 894 MHz
	B7: UL: 2500-2570 MHz; DL: 2620-2690 MHz
	B8: UL: 880-915 MHz; DL: 925-960 MHz
	B20: UL: 832-862 MHz; DL: 791-821 MHz
	B28: UL: 703-748 MHz; DL: 758-803 MHz
	B32: DL: 1452-1496 MHz

(1 of 2)

FastMile 5G Gateway 3.2 model	Supported 4G/LTE radio frequency
radio bands for sub-6 GHz (TDD)	B38: 2570-2620 MHz
	B40: 2300-2400 MHz
	B41: 2496-2690 MHz
	B42: 3400-3600 MHz
	B43: 3600-3800 MHz
5G16-12W-A	
radio bands for sub-6 GHz (FDD)	B1: UL: 1920-1980 MHz; DL: 2110-2170 MHz
	B2: UL: 1850-1910 MHz; DL: 1930-1990 MHz
	B3: UL: 1710-1785 MHz; DL: 1805-1880 MHz
	B4: UL: 1710-1755 MHz; DL: 2110-2155 MHz
	B5: UL: 824 -849 MHz; DL: 869 - 894 MHz
	B7: UL: 2500-2570 MHz; DL: 2620-2690 MHz
	B12: UL: 699 -716 MHz; DL: 729 - 746 MHz
	B13: UL: 777 -787 MHz; DL: 746 - 756 MHz
	B25: UL: 1850 -1915 MHz; DL: 1930- 1995 MHz
	B66: UL: 1710-1780 MHz; DL: 2110-2200 MHz
	B71: UL: 663-698 MHz; DL: 617-652 MHz
radio bands for sub-6 GHz (TDD)	B38: 2570-2620 MHz
	B41: 2496-2690 MHz
	B42: 3400-3600 MHz
	B43: 3600-3800 MHz
	B46 (LAA): 5150-5925 MHz
	B48: 3550-3700 MHz

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5.13.2 5G NR additional features

The following 5G NR additional features are supported by all models of the FastMile 5G Gateway 3.2:

- 3GPP Release 15 – 5G NR NSA: Option 3X, Option 3A and SA: Option 2
- Maximum 5G NR Sub-6 GHz aggregate bandwidth: 200 MHz (2CC)
- 5G NR UL and DL highest order modulation: 256 QAM
- 5G NR 2CA support for up to DL 200 MHz aggregated bandwidth

- Extensive support for 5G NR SA CA and 5G NR NSA EN-DC combinations between supported bands
- Supports dynamic spectrum sharing (DSS) for FDD bands in both NR SA and NSA modes

5.13.2.1 Model 5G13-12W-A 5G NR additional features

For model 5G13-12W-A the following 5G NR additional features are supported:

Device built in 5G NR antenna gains are as follows:

- n41: 0.5 to 4 dBi
- n79: 0.5 to 3 dBi

MIMO 5G NR NSA:

- DL MIMO 4x4: n41/n79
- UL SISO: all supported NR bands

MIMO 5G NR SA:

- DL MIMO 4x4: n41/n79
- UL MIMO 2x2: n41/n79
- UL SISO: all supported NR bands

Sounding Reference Signal (SRS) TX antenna switching:

- 5G NR NSA and SA 1T4R: n41/n79
- 5G NR SA 2T4R: n41/n79

Transmit Antenna Switching (TAS) TX antenna switching:

- NSA/SA: n41/n79 supports 4-way TAS

5.13.2.2 Model 5G15-12W-A 5G NR additional features

For model 5G15-12W-A, the following 5G NR additional features are supported:

Device built in 5G NR antenna gains are as follows:

- n78: 4.5 to 7.6 dBi
- n7/n38/n40/n41: 4 to 6 dBi
- n1/n3: 2 to 6 dBi
- n5/n8/n20/n28: 0.5 to 3 dBi

MIMO 5G NR NSA:

- DL MIMO 4x4: n1/n3/n7/n38/n40/n41/n78
- DL MIMO 2x2: n5/n8/n20/n28
- UL SISO: all supported NR bands

MIMO 5G NR SA:

- DL MIMO 4x4: n1/n3/n7/n38/n40/n41/n78
- DL MIMO 2x2: n5/n8/n20/n28
- UL MIMO 2x2: n41/n78
- UL SISO: all supported NR bands

Sounding Reference Signal (SRS) TX antenna switching:

- 5G NR NSA and SA 1T4R: n38/n40/n41/n78
- 5G NR SA 2T4R: n38/n40/n41/n78

Transmit Antenna Switching (TAS) TX antenna switching:

- NSA/SA: n1/n3/n7 supports 2-way TAS
- NSA/SA: n38/n40/n41 supports 4-way TAS

High Power UE (HPUE) in 5G NR:

- SA bands: n41/n78

5.13.2.3 Model 5G16-12W-A 5G NR additional features

For model 5G16-12W-A the following 5G NR additional features are supported:

Device built in 5G NR antenna gains are as follows:

- n48/n77/n78: 4.9 to 6.6 dBi
- n7/n38/n41: 3.4 to 6 dBi
- n1/n2/n3/n25/n66: 2 to 5.2 dBi
- n5/n12/n71: 0.7 to 3 dBi

MIMO 5G NR NSA:

- DL MIMO 4x4: n1/n2/n3/n7/n25/n38/n41/n48/n77/n78/n66
- DL MIMO 2x2: n5/n12/n71
- UL SISO: all supported NR bands

MIMO 5G NR SA:

- DL MIMO 4x4: n1/n2/n3/n7/n25/n38/n41/n48/n77/n78/n66
- DL MIMO 2x2: n5/n12/n71

- UL MIMO 2x2: n38/n41/n48/n77/n78
- UL SISO: all supported NR bands

Sounding Reference Signal (SRS) TX antenna switching:

- 5G NR NSA and SA 1T4R: n38/n41/n48/n77/n78
- 5G NR SA 2T4R: n38/n41/n48/n77/n78

Transmit Antenna Switching (TAS) TX antenna switching:

- NSA/SA: n1/n2/n3/n7/n25/n66 supports 2-way TAS
- NSA/SA: n38/n41/n48/n77/n78 supports 4-way TAS

High Power UE (HPUE) in 5G NR:

- SA bands: n41/n78/n77 C-band
- NSA mode: DC_41A_n41A, DC_3A_n78A

5.13.2.4 Supported 5G NR radio frequency

Table 9 describes the supported 5G NR radio frequency per model.

Table 9 **Supported 5G NR radio frequency**

FastMile 5G Gateway 3.2 model		Supported 5G NR radio frequency
5G13-12W-A		
radio bands for sub-6 GHz (TDD)	n41 TD 2500	2496-2690 MHz
	n79 TD 4900	4400 - 5000 MHz
5G15-12W-A		
radio bands for sub-6 GHz (FDD)	n1 2100	UL: 1920-1980 MHz; DL: 2110-2170 MHz
	n3 1800	UL: 1710-1785 MHz; DL: 1805-1880 MHz
	n5 850	UL: 824 -849 MHz; DL: 869 - 894 MHz
	n7 2600	UL: 2500-2570 MHz; DL: 2620-2690 MHz
	n8 900	UL: 880-915 MHz; DL: 925-960 MHz
	n20 800	UL: 832-862 MHz; DL: 791-821 MHz
	n28 700	UL: 703-748 MHz; DL: 758-803 MHz
radio bands for sub-6 GHz (TDD)	n38 TD 2600	2570-2620 MHz
	n40 TD 2300	2300-2400 MHz
	n41 TD 2500	2496-2690 MHz
	n78 TD 3500	3300-3800 MHz)
5G16-12W-A		

(1 of 2)

FastMile 5G Gateway 3.2 model		Supported 5G NR radio frequency
radio bands for sub-6 GHz (FDD)	n1	UL: 1920-1980 MHz; DL: 2110-2170 MHz
	n2	UL: 1850-1910 MHz; DL: 1930-1990 MHz
	n3	UL: 1710-1785 MHz; DL: 1805-1880 MHz
	n5	UL: 824 -849 MHz; DL: 869 - 894 MHz
	n7	UL: 2500-2570 MHz; DL: 2620-2690 MHz
	n12	UL: 699-716 MHz; DL: 729-746 MHz
	n25	UL: 1850-1915 MHz; DL: 1930 -1995 MHz
	n66	UL: 1710-1780 MHz; DL: 2110-2200 MHz
	n71	UL: 663-698 MHz; DL: 617-652 MHz
radio bands for sub-6 GHz (TDD)	n38	2570-2620 MHz
	n41	2496-2690 MHz
	n48	3550-3700 MHz
	n77	3300-4200 MHz
	n78	3300-3800 MHz

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5.13.2.5 Supported 5G NR NSA and SA channel bandwidths

Table 10 describes the 5G NR NSA and SA supported channel bandwidths per model of the FastMile 5G Gateway 3.2.

Table 10 **Supported 5G NR NSA and SA channel bandwidths per model**

FastMile 5G Gateway 3.2 model	Access technology	RF band	Supported channel bandwidths
5G13-12W-A	4G/LTE	TDD B41	5 MHz, 10 MHz, 15 MHz, 20 MHz
	5G NR	TDD n41	10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz
		TDD n79	40 MHz, 50 MHz, 60 MHz, 80 MHz, 100 MHz

(1 of 3)

FastMile 5G Gateway 3.2 model	Access technology	RF band	Supported channel bandwidths
5G15-12W-A	4G LTE	FDD B1	5MHz, 10MHz, 15MHz, 20MHz
		FDD B3	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B5	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
		FDD B7	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B8	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
		FDD B20	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B28	3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B32	(DL only): 5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B38	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B40	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B41	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B42	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B43	5 MHz, 10 MHz, 15 MHz, 20 MHz
	5G NR	FDD n1	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD n3	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz
		FDD n5	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD n7	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD n8	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD n20	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD n28	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD n38	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD n40	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz
		TDD n41	10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz,100 MHz
		TDD n78	10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz,100 MHz

(2 of 3)

FastMile 5G Gateway 3.2 model	Access technology	RF band	Supported channel bandwidths
5G16-12W-A	4G/LTE	FDD B1	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B2	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B3	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B4	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B5	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
		FDD B7	5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B12	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
		FDD B13	5 MHz, 10 MHz
		FDD B25	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B26	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz
		FDD B66	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
		FDD B71	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B38	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B41	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B42	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B43	5 MHz, 10 MHz, 15 MHz, 20 MHz
		TDD B46 (LAA)	10 MHz, 20 MHz
		TDD B48	5 MHz, 10 MHz, 15 MHz, 20 MHz
	5G NR	n1	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n2	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n3	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz
		n5	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n7	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n12	5 MHz, 10 MHz, 15 MHz
		n25	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n38	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n41	10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz,90 MHz,100 MHz
		n48	5 MHz, 10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz
		n66	5 MHz, 10 MHz, 15 MHz, 20 MHz, 40 MHz
		n71	5 MHz, 10 MHz, 15 MHz, 20 MHz
		n77	10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz,100 MHz
		n78	10 MHz, 15 MHz, 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz,100 MHz

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5.13.3 Wi-Fi features

The following Wi-Fi features are supported:

- Dual band simultaneous operation
- Supports 4x4 802.11b/g/n/ax 2.4 GHz (20/40 MHz) WLAN interface, with MU-MIMO
- Supports 4x4 802.11a/n/ac/ax 5 GHz (80 MHz) WLAN interface with MU-MIMO
- 1.2 Gb/s PHY rate for 2.4 GHz and 2.4 Gb/s PHY rate for 5 GHz band
- MU-MIMO (UL MU-MIMO is optional)
- UL/DL over orthogonal frequency division multiple access (OFDMA)
- Wi-Fi power savings mode of operation (target wake time [TWT])
- Supports up to 128 clients per band and per service set identifier (SSID)
- Band steering and seamless roaming (IEEE802.11k and 802.11v)
- Intelligent channel selection optimization
- Supports explicit beamforming
- Support for zero-wait DFS and spectrum analysis (optional)
- When a customer inserts a SIM, the Wi-Fi power table with regard of PLMN will rewrite to RI even without an embedded customer OPID pre-configuration; this enables the correct Wi-Fi power table for customer trials in selective countries.

5.13.4 Management features

The following management features are supported:

- LEDs for status and signal information
- local management support: web-based GUI management through a PC, laptop, or tablet with an Ethernet LAN or a Wi-Fi connection to the Nokia FastMile 5G Gateway 3.2
- remote management support (ACS management): TR-069
- power on/off button
- WPS button
- reset button

5.13.5 Base operating system and platform support

The following describes the base operating system and platform support:

- OpenWRT
- Time zone configuration
- 64 bits support for OS
- Container support
- Networking debug (ping, traceroute, iperf)

- System log and diagnostic and monitoring
- Dual image (for Firmware upgrade fail protection)
- Firmware verification
- 2x Ethernet LAN ports (1Gbps): default as LAN ports, configurable as WAN/LAN
- LED I/O control
- USB type C for debugging
- Wi-Fi drivers

5.13.6 Certifications

The following certifications are supported:

For model 5G13-12W-A:

- GEM, PSE, VCCI, and WFA

For model 5G15-12W-A:

- CE, CB, GCF and WFA

For model 5G16-12W-A:

- FCC, ISED, ETL and WFA

Table 11 provides output power information for the FastMile 5G Gateway 3.2.

Table 11 Output power information for the FastMile 5G Gateway 3.2

FastMile 5G Gateway 3.2 model	Radio	Band	Frequency (TX) (MHz)	Max EIRP (dBm)	Max EIRP (mW)
5G15-12W-A	4G/LTE	B1	1920 to 1980	29.00	794
		B3	1710 to 1785	27.88	614
		B5	824 to 849	27.42	552
		B7	2500 to 2570	27.90	617
		B8	880 to 915	27.21	526
		B20	832 to 862	27.41	551
		B28	703 to 736	26.81	480
		B32 (DL only)	NA	NA	NA
		B38	2570 to 2620	28.41	693
		B40	2300 to 2400	29.31	853
		B41	2496 to 2690	30.91	1233
		B42	3400 to 3600	31.50	1413
		B43	3600 to 3800	32.00	1585
	5G NR	n1	1920 to 1980	29.00	794
		n3	1710 to 1785	27.88	614
		n5	824 to 849	27.42	552
		n7	2500 to 2570	27.90	617
		n8	880 to 915	27.21	526
		n20	832 to 862	27.41	551
		n28	703 to 736	26.81	480
		n38	2570 to 2620	31.22	1324
		n40	2300 to 2400	31.10	1288
		n41	2500 to 2690	34.22	2642
		n78	3400 to 3800	35.00	3162
	Wi-Fi 2.4G	channel 1 to 13	2400 to 2483.5	20.00	100
	Wi-Fi 5G	5G_U-NII-1	5150 to 5250	23.00	200
		5G_U-NII-2A	5250 to 5350	23.00	200
		5G_U-NII-2C	5470 to 5725	30.00	1000
		5G_U-NII-3	5725 to 5850	NA	NA
	Bluetooth (optional)	channel 1 to 78	2400 to 2483.5	8.40	7

5.14 LTE CA 5G NR EN-DC information

Contact your Nokia representative for LTE CA 5G NR EN-DC information for the Nokia FastMile 5G Gateway 3.2.

5.15 Supported functionality

The following functionality is supported by the Nokia FastMile 5G Gateway 3.2:

- Forwarding:
  - Router Mode: supports up to 5 configurable access points
  - IPv4 forwarding (WAN/LAN)
  - IPv6 forwarding (WAN/LAN)
  - IPv4/IPv6 Dual Stack forwarding (WAN/LAN)
  - supports VLAN 802.1Q
- LAN/WAN configuration:
  - DHCPv4
  - DHCPv6
  - DNSv4
  - DNSv6
  - Host Management
  - NAT (up to 32K sessions)
  - Static IP routing configuration
  - QoS control (queues, classification, P-bit based for upstream, DSCP based for downstream) (dependent on unit support for QoS)
- Security:
  - Firewall (pre-configuration setting at boot)
  - Access Control Level (ACL)
    SSH/ICMP for LAN is configurable using the Web GUI
  - IP Filter
  - DMZ (Demilitarized Zone)
  - ALG (Application Layer Gateway)
  - support for parental control
- Application Layer:
  - VPN Passthrough (LAN-WAN)
  - Port Trigger
  - Port Forwarding
  - Time management (Daytime saving and timezone)
  - NTPv4
  - NTPv6 (cannot be configured in the Web GUI NTP time server)
  - L2TP and PPTP VPN tunneling protocols with VPN Server
- Other:
  - TR-143

- IPTV support
  - IGMP Proxy
  - IGMPv2 (RFC2236)
  - IGMPv3 (RFC3376)

6 Installation

6.1 Getting started

Installation of the Nokia FastMile 5G Gateway 3.2 is intended to be a simple “Plug and Play” user experience for most installations. LEDs on the top of the unit allow you to locate the Nokia FastMile 5G Gateway 3.2 in an optimal location for 4G/LTE or 5G signal reception.

The Nokia FastMile 5G Gateway 3.2 requires a SIM card for 4G/LTE or 5G service. Make sure that you have an appropriate 4FF/nano-sized SIM card is installed before you power up the Nokia FastMile 5G Gateway 3.2 (see section 6.2).

Warning 1 — If the Nokia FastMile 5G Gateway 3.2 is dropped, especially on a hard surface, or in case of suspected damage, contact your Nokia representative to arrange an inspection of the equipment.

Warning 2 — The Nokia FastMile 5G Gateway 3.2 must be used with cables supplied with the equipment.

Procedure 5 Get Started

1 Unpack the Nokia FastMile 5G Gateway 3.2, power adapter, and, if included, AC cable from the package.

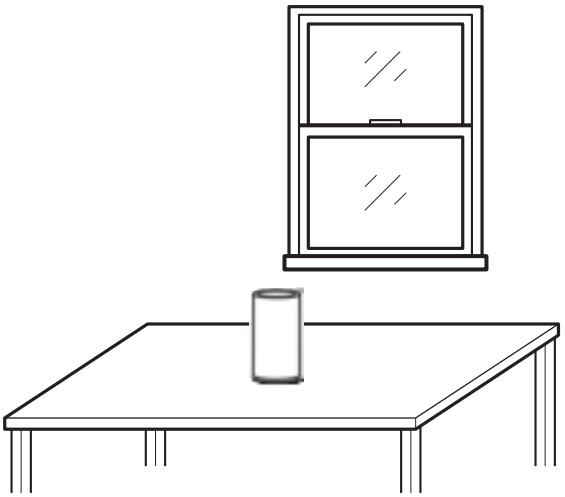
Note — The Nokia FastMile 5G Gateway 3.2 is provided with one of the following types of power adapters:

- One type connects directly to the electrical outlet. The label on this type of power adapter will indicate 48 W.
- One type uses an AC cable (supplied) to connect to the electrical outlet. The label on this type of power adapter will indicate 60 W.

2 For 4G/LTE or 5G service, place the Nokia FastMile 5G Gateway 3.2 at a possible installation location such as a table top or similar close to a window or an outer wall with few obstructions; ideally near a window as shown in Figure 15. Make sure there is an electrical outlet nearby. Be prepared to move the Nokia FastMile 5G Gateway 3.2 to another location later on in the installation process if needed.

Note — Ensure that all cables are not blocking the air flow on the bottom of the Nokia FastMile 5G Gateway 3.2 to avoid overheating.

Figure 15 **Placement of the Nokia FastMile 5G Gateway 3.2**



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3 Install the Nokia FastMile 5G Gateway 3.2, as follows:

- in a place with few Wi-Fi obstructions, ideally close to a window
- close to an AC socket
- on the side of the room closest to the base station (if known)
- on higher elevation or an upper floor of the home
- away from possible sources of interference, like electronic devices such as printers, microwave ovens, and so on
- away from metal fixtures, enclosures, cabinets, appliances, blinds, reinforced concrete, and pipes
- not in a location where mobile network connectivity might be poor, such as a basement

4 STOP. This procedure is complete.

6.2 Checking the SIM card

Use the following procedure to check if you need to install a SIM card.

The SIM card is normally provided by the network service provider or operator, and may be installed already.

Note 1 — For a device equipped with eSIM, it supports both a primary and secondary SIM card (uSIM or eSIM).

The uSIM is considered the primary SIM card; the eSIM is considered the secondary SIM card.

If the uSIM card is inserted, the uSIM card will be used.

If the uSIM card is removed, the eSIM card will be used.

Note 2 — For eSIM usage, contact your Nokia representative as this would need to be pre-installed.

A user profile must be installed on the device which can only be done in the factory, based on the Activation Code provided by an operator. Without the user profile, the eSIM is empty and can not be used.

Procedure 6 Check the SIM card

1 Before using the FastMile 5G Gateway 3.2, check if you need to install a SIM card.

2 Look on the label, located on the underside of the gateway, for the device part number.

The device part number confirms if the device is equipped with eSIM. See Table 5 “FastMile 5G Gateway 3.2 supported models and variants”. Otherwise, the device is not equipped with eSIM and can operate only with the activated uSIM card.

3 If your device is already installed with a SIM card (uSIM or eSIM), proceed to Section 6.4, “Connecting power”.

4 STOP. This procedure is complete.

6.3 Inserting the SIM card

Use the following procedure to insert the SIM card.

Some variants of the Nokia FastMile 5G Gateway 3.2 require an appropriate 4FF/nano-sized SIM card to use 4G/LTE or 5G service. Insert the SIM card as described in this procedure.

Note — The Nokia FastMile 5G Gateway 3.2 might not start up if the SIM card is not installed properly.

Procedure 7 Insert the SIM card

Use this procedure if the SIM card has not been installed yet.

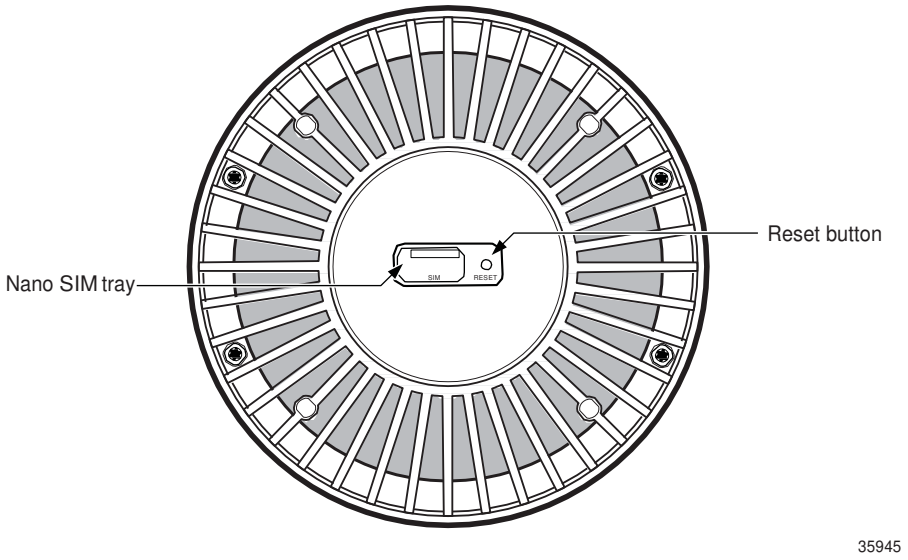
Note — For PIN-locked SIM cards, you will need to enter a PIN number, see Procedure 49.

1 Turn the FastMile 5G Gateway 3.2 power off to install or replace the SIM card.

2 Remove the SIM tray from the underside of the Nokia FastMile 5G Gateway 3.2 using the finger groove.

3 Place the SIM card in the SIM tray and reinsert the SIM tray into the Nokia FastMile 5G Gateway 3.2. Figure 16 shows the location.

Figure 16 **Inserting the SIM card in the Nokia FastMile 5G Gateway 3.2**



4 STOP. This procedure is complete.

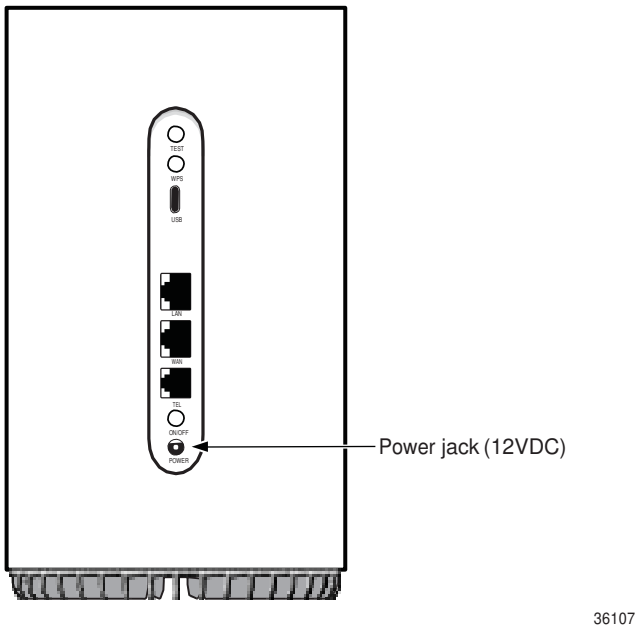
6.4 Connecting power

Use the following procedure to connect power to the Nokia FastMile 5G Gateway 3.2.

Procedure 8 Connect power

1 Connect the pre-attached cable of the power adapter to the power port on the side of the Nokia FastMile 5G Gateway 3.2. The power port location is shown in Figure 17.

Figure 17 **Connecting the power adapter to the Nokia FastMile 5G Gateway 3.2**



2 If the supplied power adapter requires an AC cable, connect the supplied AC cable to the power adapter. The label on this type of power adapter will indicate 60 W.

3 Make the connection to the electrical outlet.

Note 1 — If the supplied power adapter can connect directly to the electrical outlet, plug it to the electrical outlet. The label on this type of power adapter will indicate 48 W.

Note 2 — If the supplied power adapter uses an AC cable, plug the AC cable into the electrical outlet. The label on this type of power adapter will indicate 60 W.

4 STOP. This procedure is complete.

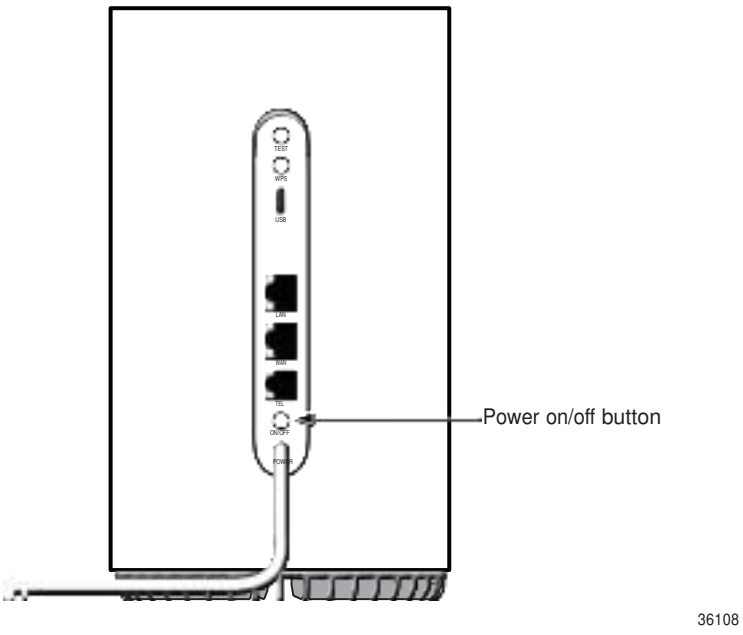
6.5 Starting up

Use this procedure to start up the Nokia FastMile 5G Gateway 3.2.

Procedure 9 Start up

1 Press the power on/off button located on the side of the unit to start up the Nokia FastMile 5G Gateway 3.2, as shown in Figure 18.

Figure 18 **Powering on the Nokia FastMile 5G Gateway 3.2**



One or more LEDs on the top of the unit will turn on.

2 Check the LEDs as described in section 6.6 and follow the actions indicated at the end of the section.

3 STOP. This procedure is complete.

6.6 Checking LEDs

The LEDs are located on the top of the Nokia FastMile 5G Gateway 3.2 as shown in Figure 19.

Figure 19 **Location of LEDs**

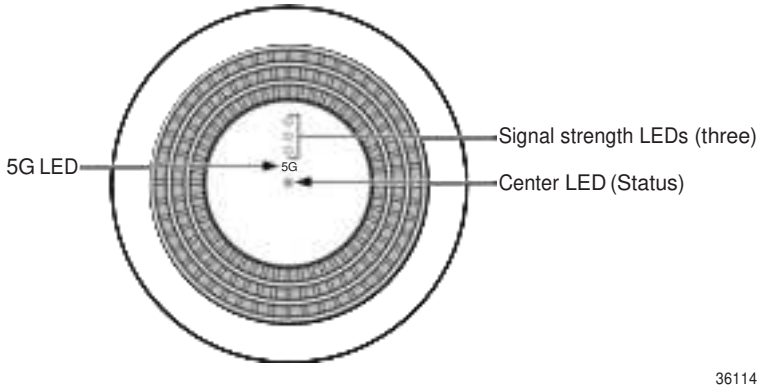


Table 12 describes LED behavior. Use the information below the table to check LED behavior, and perform the indicated actions.

Note 1 — LED indications can change over time due to variable 4G/LTE and/or 5G signal conditions.

Note 2 — LED indications might differ from what is described in Table 12 depending on if an ACS is used to change default values for thresholds or timing, or if different values have been set in a customer-specific pre-configuration.

Table 12 **Description of LEDs on the Nokia FastMile 5G Gateway 3.2**

LED	Description	Behavior
Center LED	This LED indicates status	The center LED is a multi-color LED that indicates the following: • solid blue: power on • blinking yellow: starting up • solid green: 4G/LTE or 5G connection • slow blinking red: missing or incorrect SIM card • fast blinking red: a reset to factory default settings that has been initiated through the reset button is in progress • solid red: alarm is on: no 4G/5G radio connection, or APN/ IP address not retrieved, or some applications are in abnormal state • blinking white: WPS pairing is in progress (slow blinking) or successful (fast blinking)

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LED	Description	Behavior

5G LED	This LED indicates service availability while a signal test is in progress	The 5G LED is a white LED that:
		• when the signal test button is pressed, blinks for a few seconds and then:
		  • will be on if the network is 5G
		  • will be off if the network is 4G
		Note: when using 5G NSA (option 3x) mode, the 5G LED will be off during the signal test if the FastMile 5G Gateway 3.2 is in idle state even if 5G service is available

Signal strength LEDs	There are three LEDs to indicate signal strength	Default: signal strength LEDs are OFF These LEDs will be OFF during start up and will blink fast at the start of a signal test. After a signal test they will be OFF by default. You activate a signal test by pressing the signal test button on the side of the unit. The number of lit signal strength LEDs during the signal test indicates the strength of the 4G or 5G signal, as follows: • one lit LED means that the signal is weak • two lit LEDs means that the signal is medium • three lit LEDs means that the signal is strong

(2 of 2)

Figure 20 shows the location of the signal test button.

Figure 20 **Location of the signal test button**

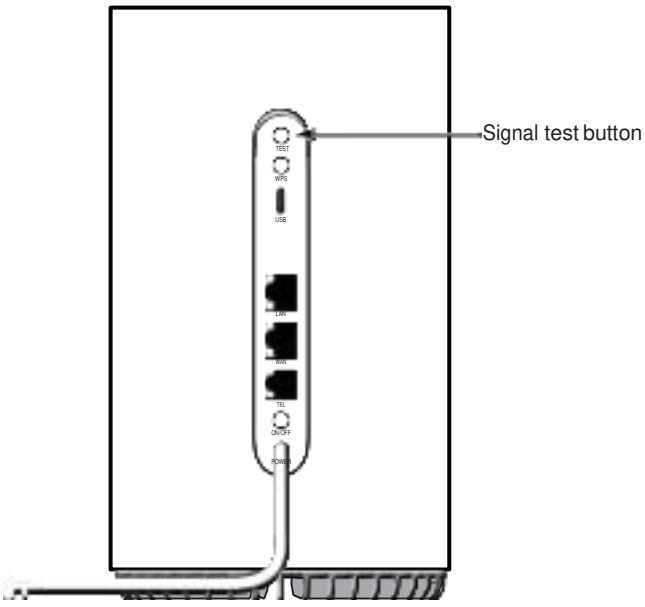


Table 13 describes the LED signal test results and actions.

Table 13 LED signal test results and actions

LED behavior	Connection status	Action
If the 5G LED is lit and all three signal strength LEDs are lit	Good 5G connection	-
If the 5G LED is not lit but all three signal strength LEDs are lit	Good 4G/LTE connection	-
If the 5G LED is lit and two of the signal strength LEDs are lit	Medium 5G connection	Reposition the unit for a better 5G signal strength (1)
If the 5G LED is not lit but two of the signal strength LEDs are lit	Medium 4G/LTE connection	Reposition the unit for a better 4G/LTE signal (1)
If the 5G LED is lit and one of the signal strength LEDs is lit	Weak 5G connection	Reposition the unit for a better 5G signal strength (1)
If the 5G LED is not lit but one of the signal strength LEDs is lit	Weak 4G/LTE connection	Reposition the unit for a better 4G/LTE signal strength (1)

Notes
(1) See Section 6.7 how to reposition the Fastmile 5G Gateway 3.2 for a better signal strength.

Procedure 10 Check LEDs

1 Check the center LED:

- **If the center LED is slow blinking red:**
  You have a missing or incorrect SIM card, and you should install it or replace it as described in section 6.3
- **If the center LED is solid red:**
  You have no 4G/LTE or 5G connection and you should reposition the Nokia FastMile 5G Gateway 3.2 for a signal as described in section 6.7.
- **If the center LED is solid green:**
  Press the signal test button on the side of the unit (see Figure 20) to determine the type of service (4G or 5G) and the signal strength by checking the 5G LED and the signal strength LEDs while the signal test is in progress, and perform the actions indicated in Table 13

Note — Once you have a good 4G/LTE or 5G connection, do not reposition or rotate the Nokia FastMile 5G Gateway 3.2. Rotating the Nokia FastMile 5G Gateway 3.2 may affect Internet speeds due to indoor signal reception conditions.

2 STOP. This procedure is complete.

6.7 Repositioning the Nokia FastMile 5G Gateway 3.2

Do the following if the LED activity described in section 6.6 indicates that you should reposition the Nokia FastMile 5G Gateway 3.2 for a 4G/LTE or 5G signal or for a better 4G/LTE or 5G signal.

Procedure 11 Reposition the Nokia FastMile 5G Gateway 3.2

1. Power off the Nokia FastMile 5G Gateway 3.2 and disconnect it from the electrical outlet.
2. Move the Nokia FastMile 5G Gateway 3.2 to a different location.
3. Connect the Nokia FastMile 5G Gateway 3.2 to an electrical outlet at the new location and power it on.
4. Check the LEDs as described in section 6.6 and follow the actions indicated in the section. Note that you might need to repeat the steps in this procedure several times before finding the final location for the Nokia FastMile 5G Gateway 3.2.
5. STOP. This procedure is complete.

6.8 Connecting Wi-Fi devices

You can connect devices that are going to use Wi-Fi for service and communications through the Nokia FastMile 5G Gateway 3.2 by using the SSID and Wi-Fi key shown on the underside of the Nokia FastMile 5G Gateway 3.2.

If you are connecting Wi-Fi devices that support WPS, press the WPS button on the side of the Nokia FastMile 5G Gateway 3.2 to start the Wi-Fi Protected Setup process.

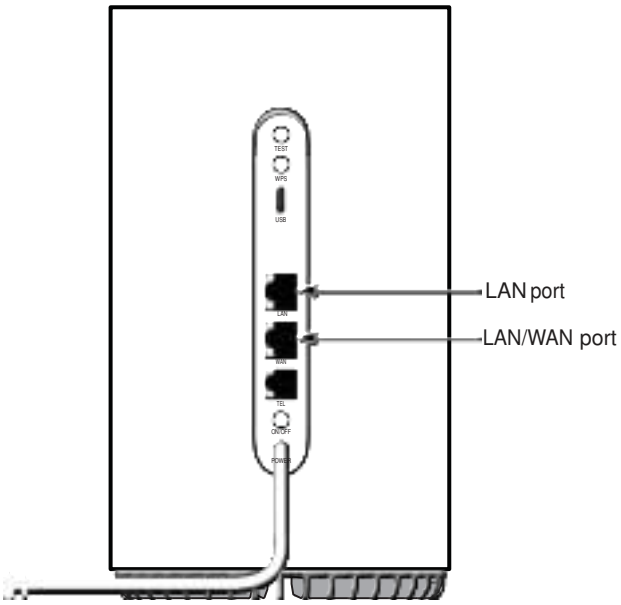
6.9 Connecting Ethernet LANs

In addition to supporting Wi-Fi connectivity on the LAN side, the Nokia FastMile 5G Gateway 3.2 also supports connection of up to two Gigabit Ethernet LANs.

Note — One of the LAN ports is indicated as “LAN/WAN”, but it currently only supports Gigabit Ethernet LAN connectivity.

Figure 21 shows the location of the Gigabit Ethernet LAN ports.

Figure 21 **Location of the Gigabit Ethernet LAN ports**



Procedure 12 Connect Ethernet LANs

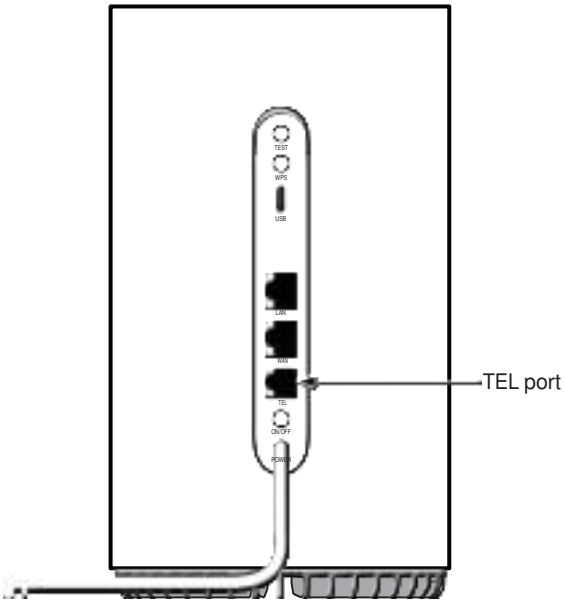
1	Connect the Ethernet LAN cable to your device (such as a laptop, or desktop PC).
2	Connect up to two Ethernet LANs if desired to either of the two Ethernet LAN connectors on the backside of the Nokia FastMile 5G Gateway 3.2.
3	STOP. This procedure is complete.

6.10 Connecting a device to the TEL port

The Nokia FastMile 5G Gateway 3.2 supports voice service though its TEL port.

Figure 22 shows the location of the TEL port.

Figure 22 **Location of the TEL port**



Note — The TEL port may be blocked and unavailable for certain providers.

Procedure 13 Connect a device to the TEL port

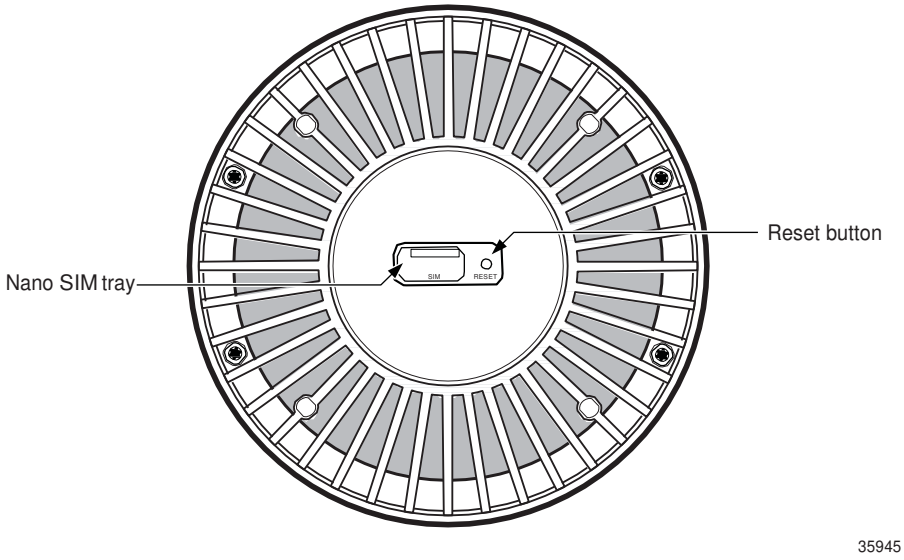
1	Connect the cable with an RJ11 connector to the FastMile 5G Gateway 3.2 TEL port on the side of the unit.
2	Connect the other end of the cable to the device.
3	STOP. This procedure is complete.

6.11 Rebooting or resetting the Nokia FastMile 5G Gateway 3.2

If needed, you can reboot or reset the Nokia FastMile 5G Gateway 3.2.

Figure 23 shows the location of the reset button.

Figure 23 **Location of the reset button**



As well, you can do a reboot or a factory reset of the Nokia FastMile 5G Gateway 3.2 through its web-based GUI as described in section 7.12.

Procedure 14 Reboot unit

1	Press the button for less than 5 seconds.
2	The unit will reboot and preserve the configured settings.
3	STOP. This procedure is complete.

Procedure 15 Reset unit

1 Press the button for 5 seconds or more.

2 The unit will reset to its factory default settings and will erase the configured settings.

Note — The Nokia FastMile 5G Gateway 3.2 might restart twice during a factory reset. This is normal behavior.

3 STOP. This procedure is complete.

7 Configuration

7.1 Getting started

You can view overview information or configure the Nokia FastMile 5G Gateway 3.2 locally through a web-based GUI that opens on a PC, laptop, or tablet that has an Ethernet LAN connection or a Wi-Fi connection to the Nokia FastMile 5G Gateway 3.2.

Note — Refer to the *FastMile 5G Customer Release Notes* before configuring the Nokia FastMile 5G Gateway 3.2.

Section 7.2 provides steps on how to establish the connection to the Nokia FastMile 5G Gateway 3.2, and how to view overview information or log in to the web-based GUI.

Table 14 lists the types of tasks that can be performed through the Nokia FastMile 5G Gateway 3.2 menu and points to the sections that describe the procedures for these tasks.

7.2 Accessing the web-based GUI

Use the procedure below to establish the connection from a PC, laptop, or tablet to the Nokia FastMile 5G Gateway 3.2, and to view overview information for the Nokia FastMile 5G Gateway 3.2 or log in through the web-based GUI.

Procedure 16 Access the web-based GUI

You will need to enter the IP address of the Nokia FastMile 5G Gateway 3.2 to perform this procedure. To log in, you will also need to enter the user name and password. You need to log in to view overview information.

Note — There are two types of users for the Nokia FastMile 5G Gateway 3.2:

- super users (such as employees of the operator or service provider)
- end users (such as service subscribers)

This Operator Manual describes the tasks that can be done when the superuser user name is used to log in to the web-based GUI. Contact your Nokia representative for the superuser user name and password.

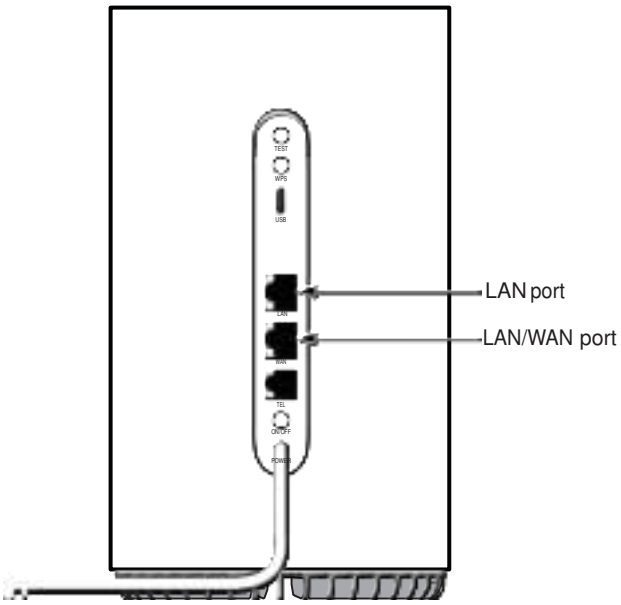
Note that the user name and password on the underside of the Nokia FastMile 5G Gateway 3.2 are the user name and password for the end user.

1 Connect your PC, laptop, or tablet through one of the RJ45 Gigabit Ethernet LAN ports on the side of the Nokia FastMile 5G Gateway 3.2 or establish a Wi-Fi connection from your device to the Nokia FastMile 5G Gateway 3.2, and make sure that the Local Area Connection setting for your device is configured as “Obtain an IP address automatically”.

Note — The FastMile 5G Gateway 3.2 must be powered up, see Procedure 6.4.

Figure 24 shows the location of the Gigabit Ethernet LAN ports.

Figure 24 **Location of the Gigabit Ethernet LAN ports**



2 On your device, open a web browser, and enter the IP address that is available on the label at the bottom of the gateway, for example:

http://192.168.1.1 or https: //192.168.1.1

Note — The http is pre-configured as the default access mode. The https access mode can only be used if the FastMile 5G Gateway 3.2 has been pre-configured accordingly.

Note — If the Operator chooses to change the default LAN IP address using ACS, then the new IP address will no longer match the one printed on the label on the underside of the gateway.

The Overview screen appears. The left side of the screen provides the menu for the Nokia FastMile 5G Gateway 3.2 and the right side of the screen provides overview information. See section 7.4 for a description of the overview information.

3 The Login window appears when you click on any of the Nokia FastMile 5G Gateway 3.2 menu items on the left side of the Overview screen, or if you click on Login at the bottom of the left side of the Overview screen.

Enter the superuser user name and password in the Login window, and click on Login.

Table 14 indicates the sections in this chapter that provide procedures for the types of tasks supported for the superuser through the Nokia FastMile 5G Gateway 3.2 menu.

Table 14 **Types of tasks**

Type of task	See section
Viewing overview information	7.4
Viewing status information	7.5
Viewing statistics	7.6
Viewing messages	7.7
Configuring network parameters	7.8
Configuring application parameters	7.9
Configuring security parameters	7.10
Performing troubleshooting functions	7.11
Configuring system parameters	7.12

4 STOP. This procedure is complete.

7.3 Logging out

To log out, click Logout from the bottom of the Nokia FastMile 5G Gateway 3.2 menu.

7.4 Viewing overview information

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to view information provided by the Overview screen.

Procedure 17 View overview information

Use this procedure to view the following information for the Nokia FastMile 5G Gateway 3.2 that is shown on the Overview screen:

- network overview information: shows the number of connected devices and whether the device is connected to the 5G/4G network and whether it is online
- radio access information: shows the 4G and 5G signal strength
- device information: the types of devices connected to the Nokia FastMile 5G Gateway 3.2 are displayed

- gateway information: shows the name, serial number, hardware version, software version, and running time for the Nokia FastMile 5G Gateway 3.2
- unread messages, if any

1	If you have not already accessed the web-based GUI, access it as described in section 7.2. The Overview screen appears after you enter the IP address in the address bar of the web browser.
2	If you are already logged in to the Nokia FastMile 5G Gateway 3.2, select Overview from the Nokia FastMile 5G Gateway 3.2 menu.
3	Refresh the page to update the displayed information.
4	STOP. This procedure is complete.

7.5 Viewing status information

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to view status information.

Under the Status / General page you can find the following:

- data usage; see Procedure 18
- SIM; see Procedure 19
- IMEI; see Procedure 20
- cellular network; see Procedure 21
- Ethernet; see Procedure 22
- Wi-Fi; see Procedure 23

Under the Status / Cellular page you can find the following:

- 4G: status, PCI, band, EARFCN, and carrier aggregation; see Procedure 24
- 5G: status, PCI, supported bands, NR-ARFCN, and carrier aggregation; see Procedure 25

Procedure 18 View data usage

Use this procedure to view data usage for the Nokia FastMile 5G Gateway 3.2.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select Status / General from the Nokia FastMile 5G Gateway 3.2 menu. Find the Data Usage field which shows the amount of data that is downloaded and uploaded from the FastMile 5G Gateway 3.2 since the last restart.
3. Refresh the page to update the displayed information.
4. STOP. This procedure is complete.

Procedure 19 View SIM information

Use this procedure to view SIM information for the Nokia FastMile 5G Gateway 3.2 such as the following:

- type:
  - removable means uSIM card
  - integrated means eSIM card
- status
- IMSI
- ICCID
- MSISDN

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Status / General page from the Nokia FastMile 5G Gateway 3.2 menu. Check the SIM details field. If the dot is grey, there is no SIM card, the SIM card may not be working, or it is not installed correctly, or you may need to input your PIN number.

Note 1 — For uSIM cards, when status shows '*Available*' it means PIN number verification is needed. When status shows '*Blocked*' it means the SIM PIN is locked and you need to input a PUK number and a new PIN number. When status shows '*Error*' it means the SIM card is destroyed because of a PUK error, modem failure, broken SIM, or specific PIN lock acceptance feature is not active in the CPE but the SIM card is PIN-locked.

Note 2 — After another SIM card B with PIN enabled is inserted to the CPE and its PIN is verified, the SIM card A PIN number will be needed when it is inserted.

See Procedure 49.

3 Refresh the page to update the displayed information.

4 STOP. This procedure is complete.

Procedure 20 View IMEI information

Use this procedure to view IMEI information for the Nokia FastMile 5G Gateway 3.2.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select Status / General page from the Nokia FastMile 5G Gateway 3.2 menu. Check the IMEI details field.
3. Refresh the page to update the displayed information.
4. STOP. This procedure is complete.

Procedure 21 View Cellular Network information

Use this procedure to view Cellular Network information for the Nokia FastMile 5G Gateway 3.2, such as APN(s) status, total download and total upload status information.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select Status / General page from the Nokia FastMile 5G Gateway 3.2 Status menu.
3. Check the Cellular Network details field.
4. Refresh the page to update the displayed information.
5. STOP. This procedure is complete.

Procedure 22 View Ethernet information

Use this procedure to view Ethernet information for the Nokia FastMile 5G Gateway 3.2, such as IP address, subnet mask, received data, and sent data.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select Status / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 Check the Ethernet details field.

If the dot is grey, there is no Ethernet connection. If the dot is green, there is an Ethernet connection.

4 Refresh the page to update the displayed information.

5 STOP. This procedure is complete.

Procedure 23 View Wi-Fi information

Use this procedure to view Wi-Fi information for the Nokia FastMile 5G Gateway 3.2, such as 2.4GHz channel and transmitting power, and 5GHz channel, transmitting power, received data, and sent data.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Status / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 Check the Wi-Fi details field.

If the dot is grey, there is no Wi-Fi connection. If the dot is green, there is a Wi-Fi connection.

4 Refresh the page to update the displayed information.

5 STOP. This procedure is complete.

Procedure 24 View 4G status information

Use this procedure to view 4G status information for the Nokia FastMile 5G Gateway 3.2.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Status / Cellular page from the Nokia FastMile 5G Gateway 3.2 menu, and click 4G.

3 Check the 4G cellular detail fields for status, PCI, band, EARFCN, and carrier aggregation downlink / uplink status information.

Note — When downlink or uplink carrier aggregation information is available, it will be displayed.

If the Status field dot is grey, there is no cellular connection. If the dot is green, there is a cellular connection.

Note — In carrier aggregation, one or more carriers are combined to increase the capacity of the link, thereby increasing the bandwidth for the user.

4 Refresh the page to update the displayed information.

5 STOP. This procedure is complete.

Procedure 25 View 5G status information

Use this procedure to view 5G status information.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Status / Cellular page from the Nokia FastMile 5G Gateway 3.2 menu. and click 5G.

3 Check the 5G cellular detail fields for status, PCI, supported bands, NR-ARFCN, and carrier aggregation downlink / uplink status information.

Note — When downlink or uplink carrier aggregation information is available, it will be displayed.

If the Status field dot is grey, there is no cellular connection. If the dot is green, there is a cellular connection.

Note — In carrier aggregation, one or more carriers are combined to increase the capacity of the link, thereby increasing the bandwidth for the user.

4 Refresh the page to update the displayed information.

5 STOP. This procedure is complete.

7.6 Viewing statistics

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to view the amount of data that has crossed the LAN, cellular, and WLAN interfaces. The statistics screen keeps track of 4G/LTE and 5G counters for connection and data transfer. You can view the following statistic counters:

- LAN; see Procedure 26
- cellular; see Procedure 27
- WLAN; see Procedure 28

Procedure 26 View LAN statistics

Use this procedure to view the following LAN statistics for the Nokia FastMile 5G Gateway 3.2:

- status
- sent bytes
- received bytes
- sent packets
- received packets
- discarded sent packets
- discarded received packets
- sent errors
- received errors

- multicast sent packets
- multicast received packets

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Statistics from the Nokia FastMile 5G Gateway 3.2 menu. Click the LAN tab along the top of the page.
3	Click Refresh to update the displayed information.
4	STOP. This procedure is complete.

Procedure 27 View cellular statistics

Use this procedure to view the following cellular statistics for the Nokia FastMile 5G Gateway 3.2:

- sent bytes
- received bytes
- sent packets
- received packets
- sent errors
- received errors
- discarded sent packets
- discarded received packets

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Statistics from the Nokia FastMile 5G Gateway 3.2 menu. Click the Cellular tab along the top of the page.
3	Click Refresh to update the displayed information.
4	STOP. This procedure is complete.

Procedure 28 View WLAN statistics

Use this procedure to view the following WLAN statistics for the Nokia FastMile 5G Gateway 3.2:

- SSID
- sent bytes
- received bytes
- sent packets
- received packets
- discarded sent packets
- discarded received packets
- sent errors

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Statistics from the Nokia FastMile 5G Gateway 3.2 menu. Click the WLAN tab along the top of the page.

3 Click Refresh to update the displayed information.

4 STOP. This procedure is complete.

7.7 Viewing messages

The Messages screen will display all messages sent by the telecom provider. You can view and delete messages.

Procedure 29 View messages

Use this procedure to view messages for the Nokia FastMile 5G GW 3.2.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Messages from the Nokia FastMile 5G Gateway 3.2 menu. You can view or delete your messages.

3 Select the view message tab to see if you have any messages.

4 Click Refresh to update the displayed information.

5 STOP. This procedure is complete.

7.8 Configuring network parameters

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to configure parameters for the following:

- wireless 2.4 GHz; see Procedure 30
- wireless 5 GHz; see Procedure 31
- wireless scheduling; see Procedure 32
- Access Point Name; see Procedure 33
- Static Routes; see Procedure 34
- LAN; see Procedure 35
- LAN IPv6; see Procedure 36
- ACS - Auto Configuration Server; see Procedure 37
- connected devices; see Procedure 38
- cell management; see Procedure 39

Procedure 30 Configure wireless 2.4 GHz parameters

Use this procedure to configure the following wireless 2.4 GHz parameters for the Nokia FastMile 5G Gateway 3.2:

- transmission mode
- channel bandwidth
- channel
- transmission power
- enable Wi-Fi multimedia (WMM)
- maximum number of clients

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network from the Nokia FastMile 5G Gateway 3.2 menu, then select Wi-Fi Networks, and click 2.4GHz.

3 Configure the wireless 2.4 GHz parameters.

4 Click Save Changes.

5 STOP. This procedure is complete.

Procedure 31 Configure wireless 5 GHz parameters

Use this procedure to configure wireless 5 GHz parameters for the Nokia FastMile 5G Gateway 3.2:

- transmission mode
- channel bandwidth
- channel
- transmission power
- enable Wi-Fi multimedia (WMM)
- enable MU-MIMO
- enable DFS re-entry
- maximum number of clients

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network from the Nokia FastMile 5G Gateway 3.2 menu, then select Wi-Fi Networks, and click 5GHz.

3 Configure the wireless 5 GHz parameters.

4 Click Save Changes.

5 STOP. This procedure is complete.

Procedure 32 Configure Wi-Fi scheduling parameters

Use this procedure to configure Wi-Fi scheduling parameters for the Nokia FastMile 5G Gateway 3.2.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network from the Nokia FastMile 5G Gateway 3.2 menu, then select Wi-Fi Networks, and click Wi-Fi Schedule.

3 Select the switch button to Enable Wi-Fi scheduling to turn the wireless signal off for the configured period.

4 Click the + New Schedule button to add a scheduling rule.

A separate panel appears for configuring wireless schedule rules.

5 Enter a start time and an end time for the period for which you want the wireless signal to be off.

6 Choose the Everyday button or the Specific days of the week button.

7 If you chose specific days, select the check boxes for the desired days.

The Recurrence Pattern shows the rules created to date.

8 Click Add.

9 STOP. This procedure is complete.

Procedure 33 Configure Access Point Name parameters

Use this procedure to configure Access Point Name parameters for the Nokia FastMile 5G Gateway 3.2.

Note 1 — You can edit and delete access points, except you can not delete the default access point. Up to 5 access points can be configured in router mode.

Note 2 — IPTV service type APN can be configured only in router mode and only in IPv4 or dual stack IPv4/IPv6 IP mode.

Note 3 — Valid first APN configurations are as follows:

- TR-069 and INTERNET
- TR-069 and INTERNET and IPTV
- TR-069: INTERNET and other service types defined in the secondary APNs
- INTERNET: only one APN defined with INTERNET service type (Internet only configuration is not allowed using the WebUI but is possible by pre-configuration)

  Generally, if using TR-069 or not, the service type of the first APN should be set to include TR-069 service type for multiple APN cases. For operators without ACS, you can configure APNs as in the 1st or 4th bullet.

  For the FastMile Gateway 3.2 WebUI, IPTV cannot be configured as the third APN when VoIP APN exists. But in ACS, it is valid to configure the first APN as TR-069 and INTERNET, the second APN as VoIP, and the third APN as IPTV.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network / Cellular from the Nokia FastMile 5G Gateway 3.2 menu, and then click APN - Access Point Name.

3 Configure Access Point parameters and click Refresh.

Configurable parameters include: APN name, service, authentication mode, IPv4, IPv4 Net mask, IPv6, and MTU.

4 STOP. This procedure is complete.

Procedure 34 Configure Static Routes parameters

Use this procedure to configure Static Routes parameters for the Nokia FastMile 5G Gateway 3.2.

Note — You can edit and delete static routes.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network from the Nokia FastMile 5G Gateway 3.2 menu, and then click Static Routes.

3 Configure Static Routes parameters and Click Add+.

4 STOP. This procedure is complete.

Procedure 35 Configure LAN parameters

Use this procedure to configure the following LAN parameters for the Nokia FastMile 5G Gateway 3.2:

- IPv4 address
- subnet mask
- DHCP: the DHCP start/end IP address and DHCP lease. Time parameters are enabled.
- DHCP start IP address
- DHCP end IP address
- lease time

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network from the Nokia FastMile 5G Gateway 3.2 menu, choose LAN Settings, and click LAN.

3 Configure the LAN parameters.

4 Click Save Changes.

5	Bind a MAC address to the LAN by entering the MAC and IP addresses in the Static DHCP Entry fields and then clicking Add. Repeat for all MAC addresses to be bound.
6	STOP. This procedure is complete.

Procedure 36 Configure LAN IPv6 parameters

Use this procedure to enable or disable IPv6 DHCP LAN for the Nokia FastMile 5G Gateway 3.2.

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Network from the Nokia FastMile 5G Gateway 3.2 menu, choose LAN Settings, and click LAN IPv6
3	Click the switch button to enable or disable IPv6 DHCP LAN.
4	STOP. This procedure is complete.

Procedure 37 Configure ACS - Auto Configuration Server parameters

Use this procedure to configure ACS - Auto Configuration Server parameters for the Nokia FastMile 5G Gateway 3.2.

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Network from the Nokia FastMile 5G Gateway 3.2 menu, and click ACS - Auto Configuration Server.
3	Configure ACS parameters by entering the required information.
4	Click Save Changes.
5	STOP. This procedure is complete.

Procedure 38 View connected devices

Use this procedure to view connected devices for the Nokia FastMile 5G Gateway 3.2. The following information will appear in a table and you can click delete for a device no longer being used:

- status: active/inactive
- connection type
- device name
- IPv4 address
- IPv6 address
- MAC address
- IP address allocation
- lease remaining
- last active time

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network from the Nokia FastMile 5G Gateway 3.2 menu, and click Connected Devices.

3 STOP. This procedure is complete.

Procedure 39 Configure cell management

Use this procedure to configure cell management for the Nokia FastMile 5G Gateway 3.2, such as to configure cells and trigger measurements.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Network /Cellular from the Nokia FastMile 5G Gateway 3.2 menu, and click Cell Management.

3 Click Measure to begin Measured Cells count. From the drop-down menu, select the number of items per page.

4 Click Refresh.

5 Click Add + to add a configured cell. The Add Cell window appears.

6	Add the PCI, EARFCN, and band values and click Add +.
7	Click Refresh.
8	STOP. This procedure is complete.

7.9 Configuring application parameters

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to configure parameters for the following:

- port forwarding; see Procedure 40
- port triggering; see Procedure 41
- configure NTP; see Procedure 42

Procedure 40 Configure port forwarding parameters

Use this procedure to configure port forwarding parameters for the Nokia FastMile 5G Gateway 3.2.

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Application from the Nokia FastMile 5G Gateway 3.2 menu, and click Port Forwarding.
3	Configure the port forwarding parameters.
4	Click Add.
5	If a port forwarding configuration already exists, click Delete to remove it.
6	STOP. This procedure is complete.

Procedure 41 Configure port triggering parameters

Use this procedure to configure port triggering parameters for the Nokia FastMile 5G Gateway 3.2.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select Application from the Nokia FastMile 5G Gateway 3.2 menu, and click Port Triggering.
3. Configure the port triggering parameters.
4. Click Add.
5. If a port triggering configuration already exists, click Delete to remove it.
6. STOP. This procedure is complete.

Procedure 42 Configure NTP

Use this procedure to enable NTP service and configure NTP parameters for the Nokia FastMile 5G Gateway 3.2.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select System / General from the Nokia FastMile 5G Gateway 3.2 menu, and click NTP.
3. Select the Switch button to enable NTP service.
4. Configure the NTP parameters.
5. Click Save Changes.
6. STOP. This procedure is complete.

7.10 Configuring security parameters

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to configure parameters for the following:

- access control level; see Procedure 43
- firewall security level; see Procedure 44
- IP filter; see Procedure 45
- ALG and DMZ; see Procedure 46

Procedure 43 Configure access control level parameters

Use this procedure to configure access control level parameters for the Nokia FastMile 5G Gateway 3.2. Note that the access control level takes precedence over the firewall policy configured in Procedure 44.

Note — The trusted network object will be shared for all WAN connections; it is not applied individually to a WAN connection.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Security from the Nokia FastMile 5G Gateway 3.2 menu, and click Access Control.

3 Switch the ACL flag for the LAN port on or off.

4 Switch the ACL flag for the WAN port on or off.

5 STOP. This procedure is complete.

Procedure 44 Configure the firewall security level

The firewall security level only applies to services provided by the Nokia FastMile 5G Gateway 3.2. Internet access from the LAN side is not affected by the firewall.

The following firewall security levels can be configured for the Nokia FastMile 5G Gateway 3.2:

- Off: All inbound and outbound traffic is allowed
- Low: All outbound traffic and pinhole-defined inbound traffic is allowed
- High: all inbound traffic is denied and only minimal common outbound services are permitted

Note — The access control level configured in Procedure 43 takes precedence over the firewall security level configured in this procedure.

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Security from the Nokia FastMile 5G Gateway 3.2 menu, and click Firewall.
3	Configure the firewall security level and enable Attack Protection to prevent malicious user exploitation.
4	Click Save Changes.
5	STOP. This procedure is complete.

Procedure 45 Configure IP filter parameters

Use this procedure to configure IP filter parameters for the Nokia FastMile 5G Gateway 3.2.

1	If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2	Select Security from the Nokia FastMile 5G Gateway 3.2 menu, and click IP Filter.
3	Configure the IP filter parameters.
4	If an IP filter configuration already exists, click Delete to remove it.
5	Click Save Changes.
6	STOP. This procedure is complete.

Procedure 46 Configure ALG and DMZ parameters

Use this procedure to configure ALG and DMZ parameters for the Nokia FastMile 5G Gateway 3.2.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Security from the Nokia FastMile 5G Gateway 3.2 menu, and click DMZ/ALG.

3 Configure the ALG parameters.

4 Click Save Changes for ALG.

5 Configure the DMZ parameters.

6 Click Save Changes for DMZ.

7 STOP. This procedure is complete.

7.11 Performing diagnostics

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to perform the following diagnostic functions:

- view logs; see Procedure 47
- perform speed tests by Ookla; see Procedure 48

Procedure 47 View logs

Use this procedure to view logs for the Nokia FastMile 5G Gateway 3.2.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Diagnostics from the Nokia FastMile 5G Gateway 3.2 menu, and then select Logs.

3 Choose a Logging level from the drop-down menu to determine what types of events are to be recorded in the log file.

4 Choose a Viewing Level from the drop-down menu to determine what types of events are to be shown from the log file.

5 Click Save Changes.

The log file is displayed at the bottom of the window.

6 Click Refresh to show the current log information.

7 STOP. This procedure is complete.

Procedure 48 Perform speed tests by Ookla

Use this procedure to perform speed tests by Ookla for the Nokia FastMile 5G Gateway 3.2. The speed test results will display the following parameter information:

- acquired time
- download speed (Mbps)
- upload speed (Mbps)
- latency (ms)
- jitter (ms)
- server location

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select Diagnostics from the Nokia FastMile 5G Gateway 3.2 menu, and then select Speed Test by Ookla.

3 Press the Start Speed Test button on the top right of the screen to initiate a new test. You should be prompted to agree to use this speed test service by Ookla as per their privacy policy. The test may take up to 45 seconds to complete.

4 STOP. This procedure is complete.

7.12 Configuring system parameters

You can use the web-based GUI of the Nokia FastMile 5G Gateway 3.2 to do the following:

Under the System / General page you can find the following:

- unlock or unblock SIM card; see Procedure 49
- change password; see Procedure 50
- reboot; see Procedure 51
- reset factory default settings; see Procedure 52
- upgrade firmware; see Procedure 53
- configure data traffic blocking; see Procedure 54

Under the System / Device Management page you can find the following:

- configure an alias for a host; see Procedure 55

Under the System / LED Management page you can find the following:

- configure LED management; see Procedure 56

Procedure 49 Unlock or unblock SIM card

Use this procedure to unlock or unblock SIM card service, but this is not required to unblock subscriber access to the device.

Note — A SIM PIN number is defined by default and made available to the end user in a SIM plastic envelope.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select System / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 To unlock the SIM card, click Enter PIN to unlock your SIM shown on the screen, and the Enter PIN to unlock SIM entry box will appear. Enter your PIN number.

Note — Entering the SIM PIN number incorrectly 3 times will result in the SIM card being blocked.

4 To unblock the SIM card, click Enter your PIN to unlock your SIM shown on the screen. Enter your PUK and PIN number.

Note — Entering the SIM PUK number incorrectly 10 times will result in the SIM card being disabled. End users will need to contact their operator to enable the SIM card.

5 STOP. This procedure is complete.

Procedure 50 Change password

Use this procedure to change the password for the Nokia FastMile 5G Gateway 3.2.

Note 1 — This procedure applies only to the end user, and not to the super user. Only the password for the normal user can be changed with this procedure.

Note 2 — Passwords must contain 8 - 24 characters. Either combinations of numbers/letters, or numbers/special characters, or letters/special characters (special characters including: !#+,-/:=@_).

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select System / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 Click Change Password and enter a new password.

4 Re-type the new password to confirm it.

5 STOP. This procedure is complete.

Procedure 51 Reboot the Nokia FastMile 5G Gateway 3.2

Use this procedure to reboot the Nokia FastMile 5G Gateway 3.2.

Note 1 — A reboot preserves the configured settings.

Note 2 — For a PIN-locked SIM card after a device reboot, a PIN number will need to be entered. See Procedure 49.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select System / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 Find Reboot Device and click Reboot to reboot the Nokia FastMile 5G Gateway 3.2.

4 STOP. This procedure is complete.

Procedure 52 Reset factory default settings

Use this procedure to reset the Nokia FastMile 5G Gateway 3.2 to its factory default settings.

Note 1 — All configuration data will be erased as a result of resetting to the factory default settings.

Note 2 — The Nokia FastMile 5G Gateway 3.2 might restart twice during a factory reset. This is normal behavior.

Note 3 — For a PIN-locked SIM card after a factory reset, a PIN number will need to be entered. See Procedure 49.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select System / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 Find Factory Reset, and click Reset to restore the Nokia FastMile 5G Gateway 3.2 to its factory default settings.

4 STOP. This procedure is complete.

Procedure 53 Upgrade firmware

Use this procedure to upgrade firmware for the Nokia FastMile 5G Gateway 3.2.

Note — This procedure applies only to the super user; it is not applicable to the end user.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select System / General page from the Nokia FastMile 5G Gateway 3.2 menu, find Firmware Upgrade, and click Upgrade.

A separate window opens.

3 To select the file, either drag and drop it in the window or click browse for the file, choose the file, and click Open.

4 Click Upgrade.

5 STOP. This procedure is complete.

Procedure 54 Configure Data Traffic Blocking

Use this procedure to block FastMile 5G Gateway 3.2 traffic, except for OAM traffic.

Note — This procedure applies only to the super user; it is not applicable to the end user.

1 If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.

2 Select System / General page from the Nokia FastMile 5G Gateway 3.2 menu.

3 Enable Block Data Traffic.

4 STOP. This procedure is complete.

Procedure 55 Configure an alias for a host

Use this procedure to configure an alias for a host for the Nokia FastMile 5G Gateway 3.2.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select System / Device Management page from the Nokia FastMile 5G Gateway 3.2 menu.
3. Configure an alias for a specific host.
4. Click Add device.
5. STOP. This procedure is complete.

Procedure 56 Configure LED management

Use this procedure to configure LED management for the Nokia FastMile 5G Gateway 3.2.

1. If you are not already logged in to the Nokia FastMile 5G Gateway 3.2, log in as described in section 7.2.
2. Select System / LED Management page from the Nokia FastMile 5G Gateway 3.2 menu.
3. Configure LED management.
4. STOP. This procedure is complete.

8 Glossary

This glossary provides the expansions and optional descriptions of most acronyms and initialisms that appear in this document.

3GPP 3rd Generation Partnership Project

4FF 4th Form Factor

ABA Automated Beam Alignment

AC Alternating Current

ALG Application Level Gateway

ANSI American National Standards Institute

AP Access Point

APN Access Point Name

CA Carrier Aggregation

CB Certification Body

CE Conformité Européanne (European Health and Safety product label)

DHCP Dynamic Host Configuration Protocol

DL Down Link

DMZ Demilitarized Zone

DSCP Differentiated Services Code Point

DUID Device Unique Identifier

EARFCN E-UTRA Absolute Radio Frequency Channel Number

ECI External Call Interface

EN-DC E-UTRAN New Radio – Dual Connectivity

EPC Evolved Packet Core

E-UTRA Evolved Universal Terrestrial Radio Access

EIP Electronic Information Products

EMC Electromagnetic Compatibility

EMI Electromagnetic Interference

EPC Evolved Packet Core

ESD	Electrostatic Discharge
ETL	Electrotechnical Laboratory
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
FDD	Frequency Division Duplex
FM	FastMile
GUI	Graphic User Interface
GCF	The Global Certification Forum
HSS	Home Subscriber Server
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
ICCID	Integrated Circuit Card Identifier
IEEE	Institute of Electrical and Electronics Engineers
IMEI	International Mobile Equipment Identification
IP	International Protection or Internet Protocol
IPv6	Internet Protocol version 6
ISED	Innovation, Science and Economic Development regulations
JATE	Japan Approvals Institute for Telecommunications Equipment
LAN	Local Area Network
LED	Light Emitting Diode
LTE	Long-Term Evolution
MAC	Media Access Control
MCV	Maximum Concentration Value or Minimum Concentration Value
MIMO	Multiple-Input Multiple-Output
MME	Mobility Management Entity
MU-MIMO	Multi-User Multiple-Input Multiple Output
NAC	Network Access Control
NEC	National Electrical Code

NR	New Radio
NSA	Non-Standalone
NTP	Network Time Protocol
NWCC	Nokia Wi-Fi Cloud Controller
OAM	Operations and Maintenance
OPID	Operator Identifier
PC	Personal Computer
PCI	Physical Cell Identifier
PCRF	Policy and Charging Rules Function
PDF	Portable Document Format
PIN	Personal Identification Number
PoE	Power over Ethernet
PSE	Japan Product Safety Electrical Appliance and Material
QR	Quick Response **RF**
	Radio Frequency
RGW	Residential GateWay
RoHS	Restriction of Hazardous Substances
RRM	Radio Resource Management
RSRP	Reference Signal Received Power
RSRQ	Reference Signal Received Quality
RSSI	Received Signal Strength Indicator
SA	Service Affecting or Standalone
SIM	Subscriber Identify Module
SINR	Signal-to-Interference-plus-Noise Ratio
SRS	Sounding Reference Signal
SSID	Service Set identifier
TAS	Transmit Antenna Switching
TCP	Transmission Control Protocol

TDD	Time Division Duplex
TEL	Telephone port
TELEC	Japan Telecom Engineering Center
UDP	User Datagram Protocol
UL	Underwriters' Laboratories or Uplink
URL	Uniform Resource Locater
USB	Universal Serial Bus
VCCI	Japan Voluntary Control Council for Interference
V DC	Volts Direct Current
VPN	Virtual Private Network
WAN	Wide Area Network
WFA	Wi-Fi Alliance industry standards
Wi-Fi	Wireless Fidelity
WLAN	Wireless Local Area Network
WPS	Wi-Fi Protected Setup

Customer Document and Product Support

Customer Documentation

CustomerDocumentationWelcomePage

Technical Support

ProductSupportPortal

Documentation Feedback

CustomerDocumentationFeedback

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